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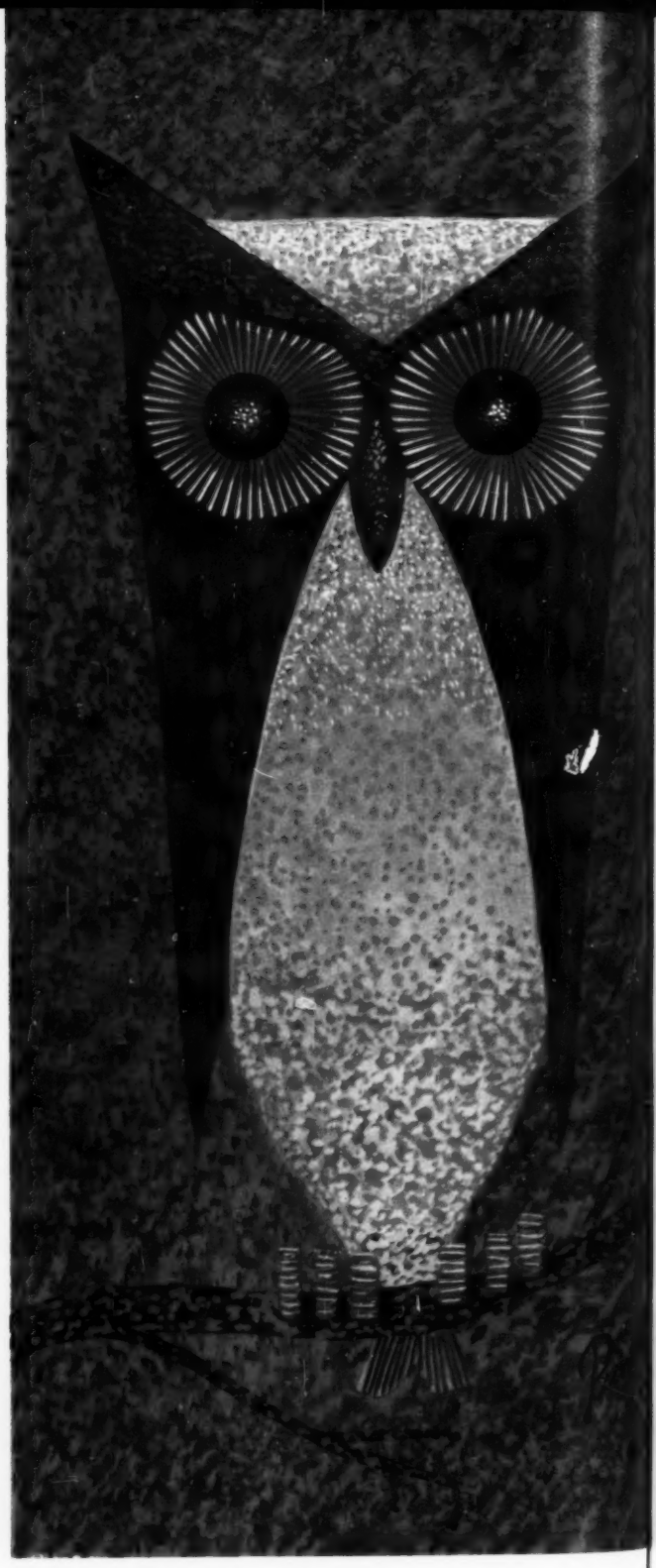

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THINKS AHEAD WITH TEXTILES

AMERICAN

DYESTUFF REPORTER

Volume 49 October 17, 1960 Number 21

IDENTIFICATION OF UNKNOWN SYNTHETIC FIBERS
Part IV
Revision, New Fibers, Cross Sections

SIDNEY G SMITH

Plant Chemist, Security Mills Inc, Newton, Mass

The introduction of new fibers and modifications of some of the older ones has made necessary a revision of the scheme of analysis previously published. This paper is a revision to include these fibers, and also to illustrate their cross-sectional shapes.

An attempt has been made to present a fairly comprehensive treatment of the application of chemical microscopy to the qualitative analysis of man-made textile fibers.

INTRODUCTION

PARTS I, II and III (*1,2,3,*) have consisted of a series of papers on the application of chemical microscopy to the identification of unknown man-made fibers.

Numerous new fibers (Table I) have recently been introduced, and this paper is a revision to include them. Because this work deals with an analytical method, considerable repetition of data previously published is necessary. Part III, Tables I, II, III, IV, will not be presented in their entirety, but this data on the new fibers is included in tables bearing the same numerals.

The cross-sectional shapes of all of the fibers dealt with in these papers appear on pages 32-5. They are direct tracings of the author's photomicrographs. Their purpose is to show cross sectional shape *only*, and not to show whether a fiber is bright or dull or other details. The magnifications vary, and no conclusion should be drawn as to denier size.

At this time, it may be well to restate briefly a few important points pertaining to the analytical method. Fiber visibility refers to the fiber substance itself, and not to delustering pigment particles which can appear highly visible when the fiber substance may be nearly invisible.

Fiber thickness may be reduced, when necessary, by making end wedge cuts or cutting slivers.

Polarization colors are observed under crossed polarizers with the fiber oriented in the bright position, ie, at 45 degrees to the planes of vibration of the polarizer and analyzer.

Becke Line observations are made with the light passing through the microscope polarizer only; the analyzer being swung out. If a cap analyzer is used, the substage polarizer is left out. Parallel refers to orienting the fiber's long axis parallel to the plane of vibration of the polarizer. Perpendicular refers to orienting the fiber's long axis perpendicular to this plane. The direction of Becke Line movement is noted when the microscope is *focused up*, and this causes the Becke Line to move toward the medium of higher refractive index, ie, fiber or mounting liquid. On non-round fibers, Becke Line observations are made at the widest part and as far away from twists as possible.

In determining the micro fusion point with the Kofler hot stage, it is important that the rate of temperature rise for some time prior to, and passing through the fusion point, be restricted to approximately 3°C per minute. This can be established by preparing time vs temperature curves for various voltage settings of the transformer in use, as shown in Figure 1.

Group separation by means of polarization colors and direction of Becke Line movement in various mounting media, has been put into tabular form and appears in Table V.

TABLE I
Trade and generic names

Trade Name	*Generic name*
Arnel Type 60	triacetate
Avlin	rayon
Avril	"
Dacron Type 61	polyester
Dacron Type 62	"
Fiber T	modacrylic (probably)
Lycra	spandex
Nylon Type 707	nylon
Antron Nylon	"
Nylon Type 90	"
Nylon monofil, Chemstrand	"
Cumuloft nylon	"
Orlon Sayelle	acrylic
Prolene	olefin
Reevon 800	"
Teflon	fluoroethylene
Zantrel	? , cellulosic

TABLE II
Fibers by cross section

Round, or nearly so
- Arnel Type 60
- Avril rayon, round, bean, few serrated
- Dacron Type 61
- Fiber T, bean shape
- Nylon Type 707
- Prolene
- Reevon 800
- Teflon
- Zantrel

Trilobal, triangular to Y shape
- Dacron Type 62
- Nylon Type 90
- Nylon monofil, Chemstrand
- Antron nylon
- Cumuloft nylon

Dogbone
- Lycra

Multiform
- Orlon Sayelle, mushroom

Collapsed tube
- Avlin rayon

NEW FIBERS——

Arnel Type 60, Celanese, is a high-tenacity triacetate staple.

Avlin rayon, American Viscose, is a staple fiber having an unusual cross section and cellular structure, said to give firmness and bulk to fabrics.

Avril rayon, American Viscose, formerly designated Fiber 40. This fiber is a modified cellulosic with high wet modulus, said to give stable fabrics.

Dacron Type 61, DuPont, is a high

shrinkage polyester staple for industrial uses.

Dacron Type 62, DuPont, is a polyester filament with a modified cross section, said to have improved hand, luster and dyeability with cationic and disperse dyes.

Fiber T, Union Carbide, is an experimental filament, probably modacrylic, said to be less "acrylic" than Orlon but to have similar properties.

Lycra, DuPont, is a polyurethane monofilament with elastic properties for lightweight elastic apparel.

Nylon Type 707, DuPont, is a polyamide filament for cordage, said to have high level wet and dry strength.

Antron nylon, DuPont, is a polyamide filament with a non-round cross section, said to impart dry hand, improved cover and unusual surface effect.

Sparkling nylon Type 90, DuPont, is a polyamide trilobal monofilament for hosiery.

Nylon monofilament, Chemstrand, is a polyamide trilobal monofilament for hosiery.

Cumuloft nylon, Chemstrand, is a polyamide textured filament for carpets.

Orlon Sayelle, DuPont, formerly Orlon Type 21, said to have a permanent reversible crimp which imparts many desirable fabric properties.

Prolene, Industrial Rayon, is a fine denier polypropylene, said to possess high chemical resistance and resistance to abrasion.

Reevon 800, Reeves Bros, is a fine denier polypropylene said to possess high chemical resistance and resistance to abrasion.

Teflon, DuPont, is a tetrafluoroethylene fiber said to possess extreme chemical resistance.

Zantrel, Hartford Fibres, is a high modulus cellulosic, said to produce stable fabrics.

It should be noted that some of these fibers are in experimental, pilot plant or semicommercial production.

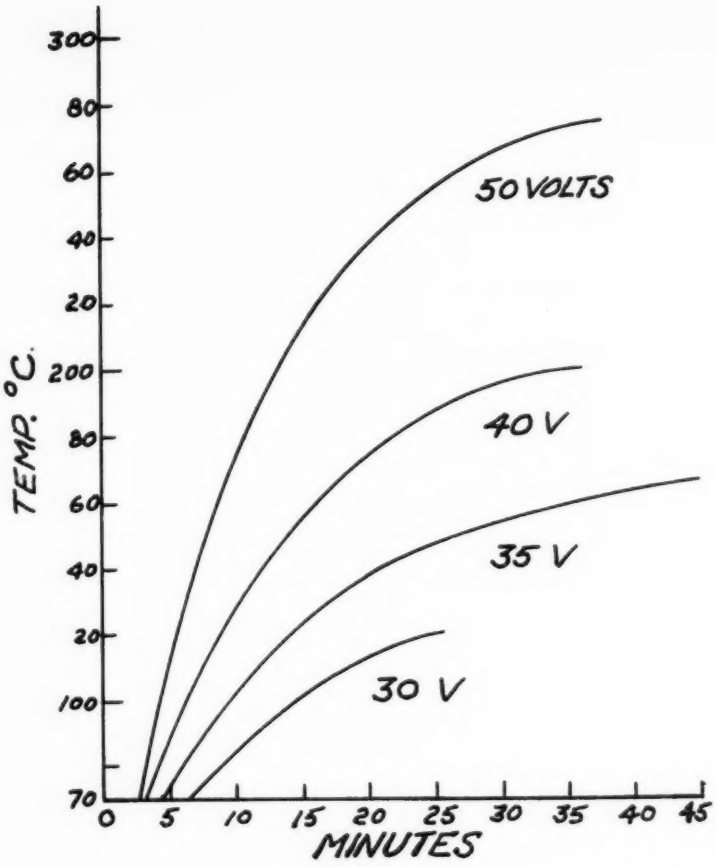


Figure 1
Rate of temperature rise of Kofler hot stage with varying transformer voltages

PROCEDURE

All observations were made using a Bausch & Lomb blue daylight filter and neutral tint filters at the ribbon filament light source.

Compare with knowns whenever necessary.

Prepare a cross section and refer to Table II, Parts III, IV. See cross sections.

Prepare a longitudinal mount in colorless mineral oil, n = 1.470, and observe fiber morphology.

Using this slide, determine the magnitude of birefringence in the 45 degree position under crossed polarizers, and the optic sign by means of the first order red plate. Refer to Table III, Parts III, IV.

Mount in Dow-Corning 710 Fluid and, using the Kofler hot stage determine the micro-fusion point, or that the fiber does not fuse. Refer to Table IV, Parts III, IV.

TABLE III
Fibers by optic sign and birefringence

Positive optic sign	*Birefringence, crossed polarizers, 45°*
Avlin rayon	gray (due to thinness, colors at twists)
Avril rayon	high-colors
Dacron Type 61	" "
Dacron Type 62	" "
Lycra	low-gray
Nylon Type 707	high-colors
Nylon Type 90	" "
Antron nylon	" "
Nylon monofil, Chemstrand	" "
Cumuloft nylon	" "
Prolene	" "
Reevon 800	" "
Teflon	" "
Zantrel	" "
Negative optic sign	
Fiber T	low-gray
Orlon Sayelle	" "
Isotropic (Practically)	
Arnel Type 60	very faintly visible

TABLE IV
Fibers by Micro Fusion Point

FIBERS THAT FUSE (MELT)

Transformer voltage setting	*Fusion point (°C)*	*Fiber*
37	158-160	Reevon 800, polypropylene
37	159-161	Prolene, "
47	239	Lycra, polyurethane
50	254	Dacron T-61, polyester
50	257	Dacron T-62, "
50	261	Nylon T-707, polyamide
50	264-265	Nylon T-90, "
50	263	Antron nylon, "
50	264-265	Nylon, monofil, Chemstrand polyamide
50	264	Cumuloft nylon, polyamide
55	297-299	Arnel 60, triacetate

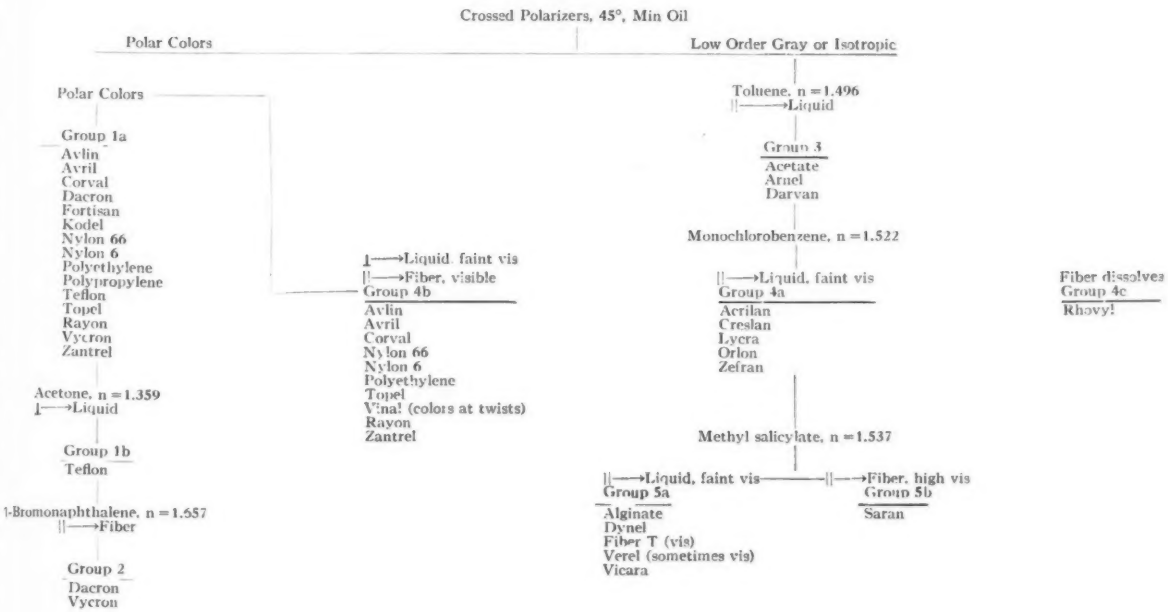
FIBERS THAT SHOW ABRUPT HIGH SHRINKAGE BUT DO NOT FUSE

Voltage	*Shrink point*	*Fiber*
45	220-226	Fiber T, probably modacrylic

TABLE V

GROUP SEPARATION

All types of same fiber behave same



GROUP SEPARATION

GROUP 1———Mount in colorless mineral oil, n = 1.470, (slide from above) and examine in the 45-degree position under crossed polarizers. All of the fibers in this group show polarization colors and have a positive optic sign.

a) Avlin, Avril, Corval, Dacron, Fortisan regular and Type 36, Kodel, nylon 66, nylon 6, polyethylene, polypropylenes Prolene and Reevon 800, Teflon, Topel, viscose rayon, Vycron, Zantrel.

Many of these fibers reappear in Group 4b because of their behavior in monochlorobenzene.

Avlin rayon in fine denier appears silver gray because of thinness due to cellular structure, but shows colors at the twists.

Vinal 5F may also show colors at the twists.

b) Mount in acetone, n = 1.359, and examine perpendicular. Becke Line moves toward liquid: Teflon.

All other fibers, in all groups, show only low order gray to silver because of low birefringence. Some very dark shades, and some blacks, may render the fiber so opaque that the polarization colors are obscured. Retain slide for Group 3 examination.

GROUP 2———Mount in 1-bromonaphthalene, n = 1.657, and examine parallel. Becke Line moves toward fiber: Dacron, Vycron.

GROUP 3———Mount in mineral oil, n = 1.470, and examine parallel. Fiber is only faintly visible: acetate, Arnel, Darvan. Mount in toluene, n = 1.496, and examine parallel. Becke Line moves toward liquid: acetate, Arnel, Darvan.

In toluene, Teflon's Becke Line also moves toward the liquid parallel and perpendicular, but Teflon is very visible in mineral oil, possesses polarization colors and would be detected previously in Group 1b. In toluene, and examined parallel, all other fibers in all groups have Becke Lines that move toward the fiber. In mineral oil, all other fibers are visible.

GROUP 4———Mount in monochlorobenzene, n = 1.522.

a) Examine parallel. Fiber is only faintly visible. Becke Line moves toward liquid: Acrilan, Creslan, Lycra, Orlon, Zefran. Lycra's fiber substance is practically invisible and no Becke Line is observed.

b) Examine perpendicular. Fiber is only faintly visible. Becke Line moves toward liquid. Now examine parallel and fiber is visible. Becke Line moves toward fiber: Avlin, Avril, Corval, nylon 66, nylon 6, polyethylene, Topel, vinal, viscose rayon, Zantrel.

c) Fiber starts to swell and dissolves within five minutes: Rhovyl.

In monochlorobenzene, all fibers in remaining Group 5 have Becke Lines that move toward the fiber when examined either parallel or perpendicular.

GROUP 5———Mount in methyl salicylate, n = 1.537.

a) Examine parallel. Fiber is only faintly visible or invisible (Fiber T and some Verel are exceptions). Becke Line moves toward liquid: alginate, Dynel, Fiber T, Verel, Vicara.

b) Examine parallel. Fiber is very visible. Becke Line moves toward fiber: saran.

CONFIRMATORY TESTS

GROUPS 1 AND 2———Avlin, Avril, Corval, Dacron, Fortisan, Fortisan 36, Kodel, nylon 66, nylon 6, polyethylene, polypropylenes Prolene and Reevon 800, Teflon, Topel, viscose rayon, Vycron, Zantrel.

1a) *Cellulosic fibers*: Avlin, Avril, Corval, Fortisan, Fortisan 36, Topel, viscose rayon, Zantrel. See Table VI.

Avlin rayon's cellular structure, collapsed tube cross section and longitudinal markings due to air spaces, confirm its identity.

Fortisan 36 and Zantrel have round cross sections. Avril rayon has a round to bean section with a few serrated. Avril shows occasional slight striations, a few twists and is lightly pitted, whereas Fortisan 36 and Zantrel have no striations or twists and are heavily pitted.

Regular Fortisan is lobed, whereas the other cellulosics in Group 1a are serrated or round. Corval, Topel and regular viscose rayon are all serrated and microscopically similar. However, Corval is insoluble in cuprammonium hydroxide, whereas viscose rayon is soluble (4). High strength rayons may have cross sections of various shapes (5).

1a and Group 2) *Polyester fibers:* Dacron, Kodel, Vycron.

The Group 2 fibers Dacron and Vycron have very high parallel indices of refraction. They are immediately identified by the fact that they are the only fibers among all considered whose Becke Lines move toward the fiber when examined parallel in 1-bromonaphthalene. Final confirmation is made by micro fusion point, Dacron 257-258°C, Vycron 238°C. Dacrons Type 61 and Type 62 behave the same as regular Dacron. Dacron Type 62 is distinguished by its trilobal cross section.

Kodel has a lower parallel refractive index than Dacron or Vycron. Kodel may be distinguished from nylons 66 and 6 by the fact that, when mounted in monochlorobenzene and examined perpendicular, Kodel's Becke Line moves toward the fiber, whereas nylon's Line moves toward the liquid. Dacron's and Vycron's Lines would also move toward the fiber, but they will be eliminated by their behavior in 1-bromonaphthalene. Final confirmation of Kodel is its micro fusion point of 290°C.

1a) *Polyamide fibers*: nylon 6, nylon 66.

Final confirmation and identification of nylon type is made by micro fusion point: nylon 6 is 224°C, nylon 66 is 264°C. All of the following nylon 66 types have the same micro behavior and fusion point as regular nylon 66:

Nylon Type 707, DuPont, bright filament with a round cross section.

Antron nylon, DuPont, semidull filament with trilobal cross section and fine denier per filament.

Nylon Type 90, DuPont, has a trilobal cross section identical to Antron, but is a 15 denier monofilament.

Nylon, Chemstrand, 15 denier bright monofilament has a trilobal cross section.

Cumuloft Nylon Type RSD, Chemstrand, is a semidull filament with a trilobal cross section, but is more Y shaped than triangular, and is in a coarse denier per filament.

The nylons are all soluble in concentrated formic acid at room temperature.

1a) *Polyolefin fibers*: polyethylene, polypropylenes Prolene and Reevon 800.

The polyolefins are distinguished from the other fibers, and between themselves, by their micro fusion points: high density linear polyethylene 126-135°C, Prolene polypropylene in fine denier (2 d/f) staple 159-161°C, Reevon 800 polypropylene in fine denier (5 d/f) staple 158-160°C.

In monochlorobenzene, these polypropylene fibers have Becke Lines that move toward the liquid both parallel and perpendicular, and therefore they do not reappear in Group 4b.

The polyolefin fibers have a density less than 1.0 and therefore float on water.

1b) *Tetrafluoroethylene fiber*: Teflon.

Teflon is easily identified as it has the lowest refractive index among all of the fibers considered in this paper. Examined perpendicular in acetone, n = 1.359, Teflon is the only fiber whose Becke Line moves toward the liquid. The bleached fiber appears light to darkly pitted. It has a very high density of 2.3 g/cc, which is exceeded only by fiber glass (6). For Teflon's behavior in toluene, see Group Separation, Group 3.

TABLE VI
Cellulosic fiber characteristics

		Longitudinal Appearance		
Fiber	*Cross Section*	*Striated*	*Twists*	*Pitted*
Avlin	collapsed tube	yes	many	air space markings
Avril	round, bean, few serrated	occas slight	few	yes, lightly
Corval	serrated	yes	yes	no
Fortisan	lobed	yes	few	yes
Fortisan 36	nearly round	no	none	yes, heavily
Topel	serrated	yes	yes	no
Viscose, reg	serrated	yes	yes	no
Zantrel	round	no	none	yes, heavily

GROUP 3———acetate, Arnel, Arnel Type 60, Darvan.

Under crossed polarizers, all of the fibers in this Group are low order gray or isotropic.

Under crossed polarizers, Arnel remains dark, or nearly so, throughout rotation, and shows no color change with the first order red plate. With this plate, occasionally an extremely faint color may be seen along parts of the fiber, but for all practical purposes the fiber is isotropic. It is the only isotropic fiber among all considered, and this property affords an easy way of distinguishing it from acetate. Arnel's cross section is more serrated than that of acetate. Arnel shrinks and fuses abruptly at 297°C. Arnel Type 60 has the same fusion point of 297°C and the same micro behavior. However, Arnel 60 has a round cross section, which distinguishes it from regular Arnel.

Acetate shows low order silver under crossed polarizers, and has a positive optic sign. It has a lobed cross section and it decomposes, but does not fuse when heated in silicone oil.

Darvan is dull silver under crossed polarizers and has a negative optic sign. It has a characteristic cross section. Darvan X-7 has an abrupt high shrinkage point at 180-182°C.

Acetate is soluble in acetone at room temperature whereas Arnel swells. Arnel is soluble in chloroform 10 minutes at room temperature while acetate is deformed (7). Acetate is soluble when shaken one hour in 70% V/V aqueous acetone, whereas Arnel is insoluble (8).

GROUP 4———a) Acrilan, Creslan, Lycra, Orlon, Zefran; b) Avlin, Avril, Corval, nylon 6, nylon 66, polyethylene, Topel, Vinal 5F, viscose rayon, Zantrel; c) Rhovyl.

a) The acrylic fibers Acrilan, Creslan, Orlon and Zefran all possess low birefringence and are low order gray to silver under crossed polarizers. Orlon is readily identified here by its negative optic sign and dogbone cross section. All of the Orlon types except Sayelle have dogbone cross sections. Orlon Sayelle has the same micro behavior as the other Orlons.

but has a characteristic mushroom cross section which identifies it. The other acrylics generally have a round or bean shape cross section. Orlon also has longitudinal striations and twists due to its contour, whereas the other acrylics are rod-like with few if any twists.

Acrilan in 3 d/f is round, but 5 d/f and higher may be bean shaped. Acrilan examined parallel in anisole, n = 1.518, has an indistinct Becke Line and is practically invisible.

Creslan has a generally round cross section, although sometimes mixed with bean and short dogbone shapes. It behaves the same as Acrilan in anisole.

Zefran has a round cross section. Examined parallel in anisole, Zefran shows a good sharp Becke Line that moves toward the fiber and its fiber substance is more visible than Acrilan or Creslan.

Chemstrand Corp Bulletin No. AP -16 (9) provides information on the behavior of acrylic fibers in conc formic acid at 90-100°C for one minute. It states that, under these conditions: Acrilan shrinks to 10% of original and the acid becomes milky; Creslan dissolves into a milky solution; Zefran remains in fiber form.

Lycra has a positive optic sign, whereas the acrylics in subgroup "a" have a negative sign. Lycra is a monofilament composed of a segmented polyurethane (*10*). In cross section the monofilament appears as an adhering group of dogbone segments or filaments. When the monofilament is stretched to rupture, the dogbone segments or filaments readily separate as individuals. Micro tests are made on these separated individuals. The fiber is heavily pigmented. The fiber substance is invisible when examined parallel or perpendicular in monochlorobenzene, and no Becke Line can be observed. Final confirmation of Lycra is made by its micro fusion point of 239°C. Fusion is moderately sharp, and is observed as fusion at fiber cross-over points and rounding of the sharp square cut ends. Lycra's fusion point is practically the same as that of Vycron. However, their micro appearances and reactions are completely different.

b) Avlin, Avril, Corval, nylon 6, nylon 66, polyethylene, Topel, Vinal 5F, viscose rayon, Zantrel.

All of these fibers appear in this subgroup because of their behavior in monochlorobenzene. Examined parallel, their Becke Lines move toward the fiber and the fiber substance is visible. Examined perpendicular, their Becke Lines move toward the liquid and the fiber substance is only faintly visible or invisible. They all have a positive optic sign. For data on all except Vinal 5F, see Confirmatory Tests, Group 1a.

Vinal 5F (international name vinylon) appears gray to yellowish at widest part under crossed polarizers. Colors may show at the twists where the fiber is being viewed on edge.

Vinal 5F has a positive optic sign. When examined perpendicular in monochlorobenzene, it is practically invisible. The clear skin edges disappear, and the fiber substance is visible only because of the dark longitudinal pitting. Vinal 5F has a characteristic multiform cross section with a pronounced skin-core effect. Final confirmation is made possible by the fact that Type RHT shrinks greatly and abruptly with flaring of the cut ends at 223-226°C. Type MCM shrinks abruptly at 228-231°C. The fiber does not fuse in silicone oil up to 300°C.

Vinal (Kuralon) is soluble in formic acid at 55°C, and also in phenol and cresol (*11*). All three are also solvents for nylon.

c) Rhovyl falls in this sub-group because of its solubility in monochlorobenzene. Mounted in this liquid, the fiber swells, and its pitted surface shifts to the center, giving the appearance of a sort of medulla, which after approximately five minutes breaks up and disappears, leaving a colorless structure.

Rhovyl (polyvinyl chloride) is low order gray under crossed polarizers, and has a positive optic sign. It can thus be readily distinguished from the acrylics with round or bean cross sections in Group 4a, because these all have a negative sign. Rhovyl's cross section is generally round with some fibers having one or both sides slightly indented.

Final confirmation may be made by Rhovyl 55's micro fusion point of 206-208°C. The fiber shrinks abruptly at approximately 85°C due to its design as a high shrinking type. If the fiber was from a fabric that had been previously shrunk during manufacturing, this abrupt shrinkage would not take place. Fusion proceeds very slowly, and complete softening, as evidenced by the fusing together of crossed fibers, occurs at 206-208°C. The fiber decomposes when heated in air.

GROUP 5———a) alginate, Dynel Fiber T, Verel, Vicara; b) saran.

a) Calcium alginate is rarely met with. It has a characteristic sharply serrated or branched cross section, is low order gray under crossed polarizers, has a positive optic sign and is soluble in weak alkalis.

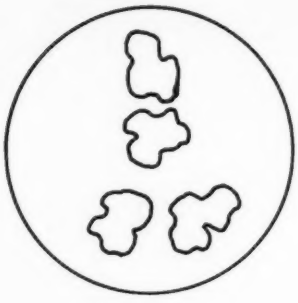
Dynel has a characteristic multiform cross section, is low order gray under crossed polarizers, and has a positive optic sign. This positive optic sign makes it easy to distinguish in blends from the acrylics with which it is frequently met. Dynel is soluble in warm acetone.

Fiber T differs from the acrylics in Group 4a, in that, when mounted in monochlorobenzene and examined parallel, its Becke Line moves toward the fiber and not toward the liquid. It has a bean shape cross section, is low order gray under crossed polarizers and has a negative optic sign. Examined parallel in methyl salicylate, its Becke Line moves toward the liquid, but the fiber is visible. Fiber T has a fairly rapid high shrink point at 220-226°C, which is the same as Vinal 5F. However, Vinal 5F has a positive optic sign and a characteristic cross section. Fiber T is insoluble in cold or hot acetone.

Verel has a dogbone cross section, and is practically the same as Orlon both in cross section and longitudinal appearance. Verel differs in that it is readily and completely soluble in hot acetone, and this test should always be used to distinguish between them. Normally, Verel is almost invisible in methyl salicylate, but caution must be exercised here, because some dyed samples have appeared very visible. To confirm identity, use the solubility in hot acetone and the fact that the Becke Line of Verel moves toward the fiber in monochlorobenzene when examined parallel and perpendicular. Orlon's Becke Line moves toward the liquid. Verel is low order gray under crossed polarizers and has a negative optic sign. Verel and Fiber T are the only fibers with a negative sign in Group 5a.

Vicara is no longer being produced but is included as an example of the azlon generic group, and because it still may be encountered. Vicara is low order gray under crossed polarizers and has a positive optic sign. It is the only fiber in Group 5a that has a round cross section. Final confirmation may be made by its sharp micro fusion point of 278°C.

b) Saran has a negative optic sign, and is the only fiber in this paper that appears a whitish-lemon-yellow in the 45 degree position under crossed polarizers. Its cross section is generally round, although it may be special shapes. Final confirmation may be made by its shrinkage and micro fusion point of 174-176°C. Saran is soluble is monochlorobenzene at the boil five minutes.



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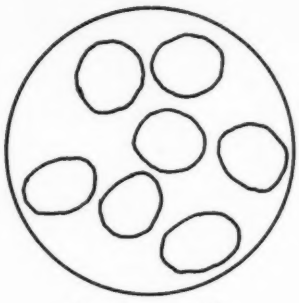
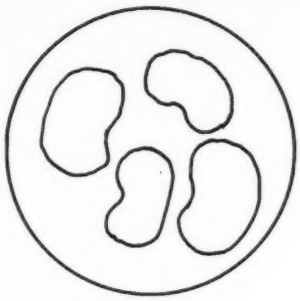


Acrilan 3 d/f



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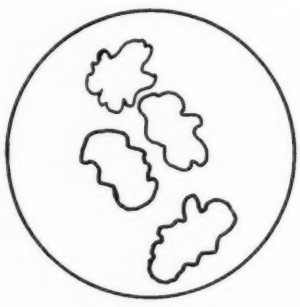

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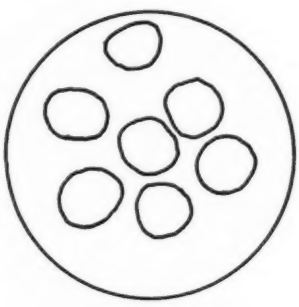

Arnel T-60

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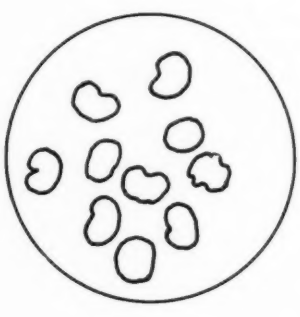
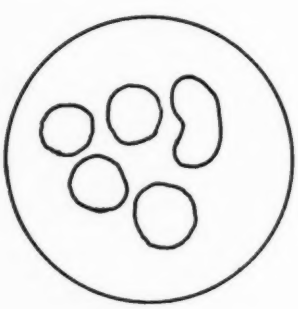


Avril rayon

Corval



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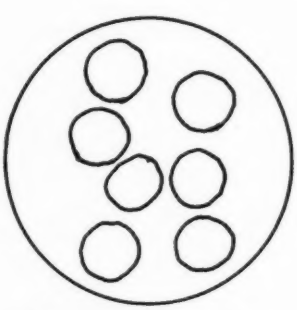
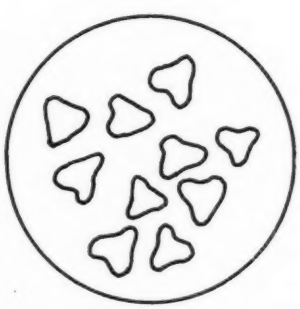


Dacron T-54,61,64

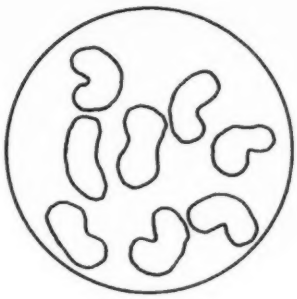


Dacron T-62

Cross sections

Darvan

Dynel



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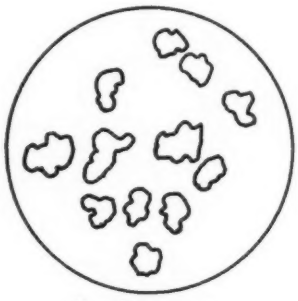

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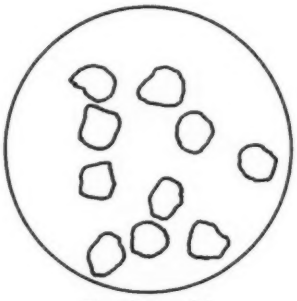

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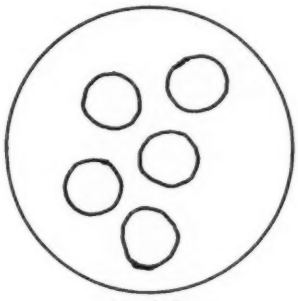

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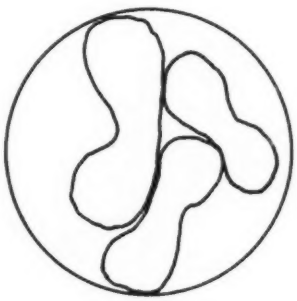

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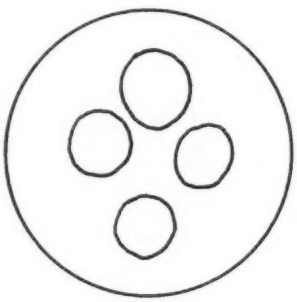

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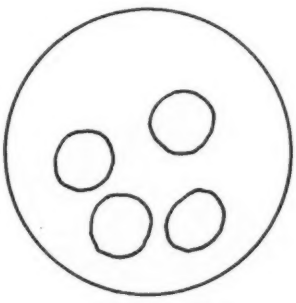

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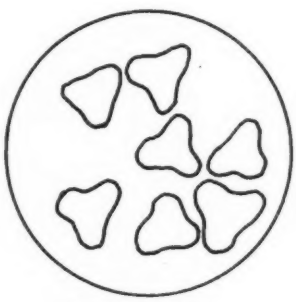
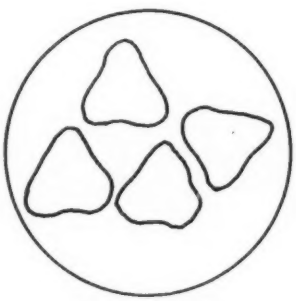
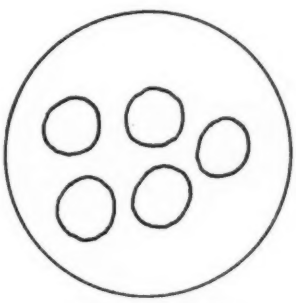


Antron nylon
DuPont

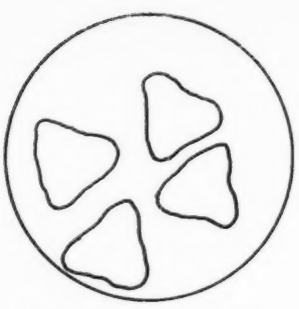


Nylon T-90
DuPont 15 d/f



Nylon T-707
DuPont

Cross sections

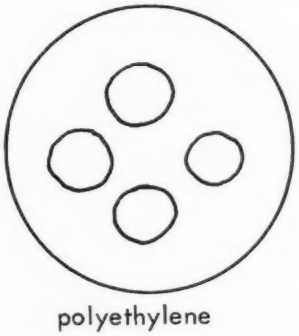


Nylon, mod x sect
Chemstrand, 15 d/f

Cumuloft Nylon
Chemstrand

Orlon
all except Sayelle

Orlon Sayelle



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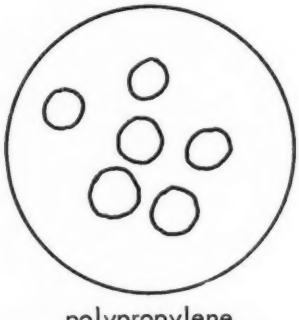

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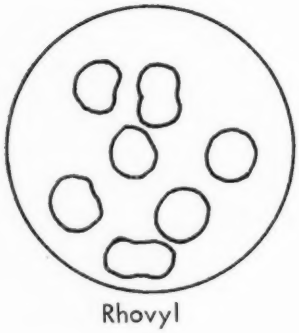
Prolene, Reevon 800



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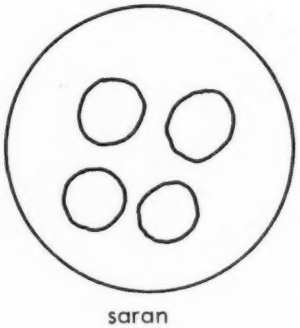

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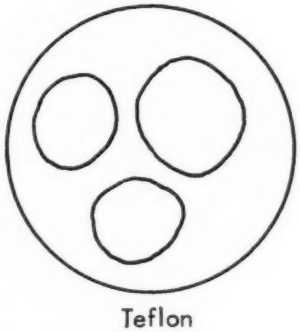

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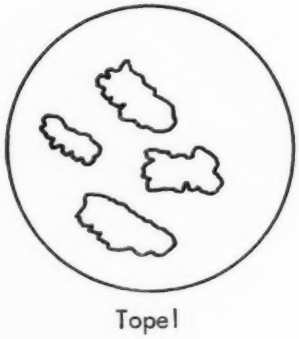

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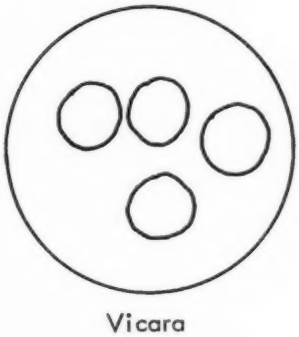
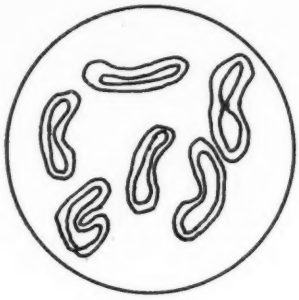
Verel



Vicara

Cross sections



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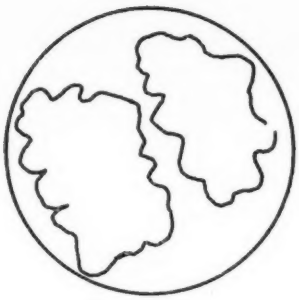

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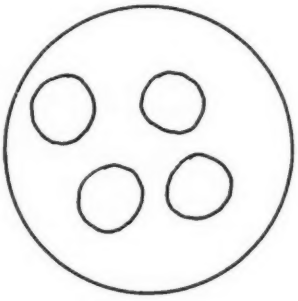

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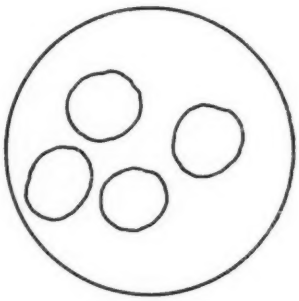

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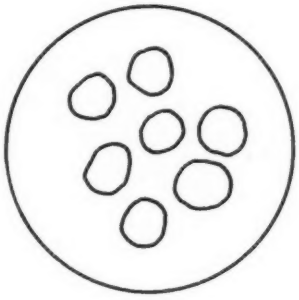

Zantrel

Cross sections

SUMMARY

Part IV of this series of papers has consisted of a revision of the scheme of analysis, brought about by the introduction of new fibers and modifications of some of the older ones. Illustration of the cross sectional shapes of these fibers should prove helpful in their identification.

As may be seen from the preceding data, in most cases it is no longer possible to identify a man-made fiber by merely observing longitudinal and cross sectional mounts. Important as this is, one must bring to bear more of the techniques of chemical microscopy to accomplish accurate identification.

It seems almost certain that the present diversity of these fibers, and the accompanying problem of identifying them, would more and more force the use of the microscope in textile laboratories. Often, the nature of the sample, or its size, simply precludes the use of other methods of analysis.

This work has dealt with some of the qualitative aspects of textile microscopy, but it must be noted that there are very many important quantitative uses. Indeed, one would be hard put to find many areas where the microscope can be used to more advantage than in textiles.

ACKNOWLEDGMENT

The author wishes to express his thanks to the management of Security Mills, Inc for permission to publish this paper, and to the following companies who kindly provided samples of their fibers:

American Viscose Corp
Celanese Fibers Co
Chemstrand Corp
E I duPont De Nemours & Co, Inc
Industrial Rayon Corp
Reeves Bros, Inc
Union Carbide Corp

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(2) Smith, Sidney G, "Identification of Unknown Synthetic Fibers, Part II, Applications of Polarized Light Microscopy," *ibid 48*, No. 6 (Mar 23, 1959).
(3) Smith, Sidney G, "Identification of Unknown Synthetic Fibers, Part III, Revision and Application of Micro Fusion," *ibid 48*, No. 26, (Dec 28, 1959).
(4) Courtaulds (Alabama) Tech Bull, "Corval" (July 16, 1958).
(5) Smith, D K, "High Strength Regenerated Cellulose Fibers," *Textile Research J 29*, No. 1 (Jan, 1959).
(6) DuPont Tech Bull T-6 (Dec, 1958).
(7) Praeger, Siegfried S, "Selective Solvents for Analyzing Textile Fiber Mixtures," *Am Dyestuff Reptr 46*, No. 14, 497 (July 15, 1957).
(8) Armfield, W, "The Quantitative Analysis of Binary Fiber Mixtures Containing Tricel (Cellulose Triacetate)," *J Textile Inst* Proceedings, 50, No. 3 (March, 1959).
(9) Chemstarnd Tech Bull No. AP-16, "The Identification and Differentiation of Acrilan and Acrilan 16 From Other Acrylic or Related Fibers" (Jan, 1960).
(10) DuPont Tech Bull NP-10, "Lycra Spandex Fiber, Properties and Processing of Yarns and Fabrics" (Oct, 1959).
(11) Moncrieff, R W, "Artificial Fibers," 2nd ed, 304, (1954) Nat Trade Press Ltd, London.

General Calendar

AMERICAN CHEMICAL SOCIETY
Mar 21-30 (139th National Meeting, St Louis, Mo)

AMERICAN COTTON MANUFACTURERS INSTITUTE
Mar 23-25 (12th Annual Meeting, Fontainebleau Hotel, Miami Beach, Fla)

CANADIAN TEXTILE CONFERENCE
Feb 7-9 (Queen Elizabeth Hotel, Montreal, Quebec, Canada)

THE FIBER SOCIETY
Oct 27-28 (Fall Meeting, Washington Hotel, Washington DC)

INTERNATIONAL TEXTILE MACHINERY EXPOSITION
1962 (3rd Exposition, Hanover, Germany)

KNITTING ARTS EXHIBITION
April 24-28 (Atlantic City Auditorium, Atlantic City, NJ)

SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSOCIATION
Nov 10, Dec 8 (Hotel Roosevelt, New York, NY)

TEXTILE OPERATING EXECUTIVES OF GEORGIA
Oct 22 (Harrison Hightower Bldg. Georgia Inst of Technology, Atlanta, Ga)

WORLD CONGRESS FOR MAN-MADE FIBERS
May 15-18, 1962 (2nd World Congress, London, England)

BOOK REVIEWS

HANDBUCH DER WERKSTOFFPRUEFUNG
Vol V—Pruefung der Textilien

(Testing Materials' Handbook. Vol V— Textile Testing)
Edited by H Sommer and Fr Winkler, Springer-Verlag, Berlin.
1440 pages with 928 illustrations

This massive work encompasses every field of textile testing, not only from the standpoint of physical testing of fibers and fabrics, but from the point of view of the chemist inquiring into analysis of dyes, textile auxiliaries, finishes, and from the standpoint of usefulness of the textile material.

Although it is not a fair comparison, this book must bring to mind the American Society of Testing Material's manual on Textile Testing. The German work is considerably more extended and comprehensive, is replete with references to foreign publications, and includes testing of all fibers, whether German or otherwise.

The several chapters are written by different technical contributors, each expert in his line. The subject matter, briefly, covers the following subjects: — study of fiber construction by X-rays, electron microscope, microphotographs, colorimetric analysis, fluorescence; complete mechanical technology, together with layout of testing lab and equipment, measurement of twist, elasticity and other physical properties, including staple length, thickness, denier, etc.

Further, stability and strength tests, adaptability of yarns to weaving and knitting, statistical evaluations, qualitative analysis, quantitative separation of blends, determination of kind and degree of damage, determination of contaminants, finishes and residues, determination and analysis of textile auxiliaries, both on and off the fiber, dyestuff testing, biological examination.

Further, properties of textiles, and evaluation of usefulness, mothproofing and repellency, warmth, resistance of textiles to chemicals, airflow (porosity), heat, ironing, pleating, wrinkling and shrinkage, and all influences of wear and handling.

There are valuable tables showing, for example, action of chemicals in identification of all textile fibers, characteristic reactions of the phosphates, methods of evaluation of detergents and dye assistants, and analytical methods for determination of finishes on the fiber, elastic properties, moisture regain, influence of moisture on tensile strengths, and many others.———HPB

CHROMATOGRAPHIC REVIEWS
Vol II (covering 1959)

Edited by Michael Lederer
Published by D Van Nostrand Company, Inc
(Elsevier Publishing Co)
New York, NY
Price: $9.00

This volume is the second in a review series which will cover the progress in the fields of chromatography, electrophoresis and related methods. It includes: "Review of Gas-Liquid Chromatography", by C J Hardy and F H Pollard; "Starch Electrophoresis" by H Bloemendal; "Paper Chromatography of Dinitrophenyl Amino Acids" by G Bisterte, J W Holleman, J Holleman-Dehove and P Sautiere; "The Chromatography of the Flavonoid Pigments," by J B Harborne; "The Separation of Different Types of Human Haemoglobins", by H K Prins; and "Inorganic Adsorption and Precipitation Chromatography," by E Hayek.

The format of this volume is the same as that of Volume I of this series. The excellent illustrations, the extensive lists of references, and a general index make this a valuable work for workers in these fields. ———RJK

ABSTRACTS

Kinetics of Dyeing Wool with 1:2 Metal Complex Dyes

Ackermann, H, *Dyer 123, 155, Jan 29, 1960*

Since its introduction in 1949 the class of 1:2 metal complex dyes for the neutral dyeing of wool has grown very rapidly. These metal complex dyes are anionic like other acid wool dyes, although they contain no sulfonic or similar ionizing groups. Most of the research work on them has dealt with the effect of the chemical structure of the dye anion on the neutral drawing property; the effect of cations in the dyeing of wool has had little attention.

The author shows that in the neutral dyeing of wool the various cations have a pronounced effect on the rate of exhaustion, similar to that observed in the direct dyeing of cellulose. To explain the influence of cations it is assumed that the rate of dyeing is largely determined by the adsorption of dye at the fiber surface, and that this adsorption equilibrium is affected by the same general thermodynamic principles as the distribution of such dyes between water and an organic solvent.

The effect of cations on the distribution of anionic dyes between water and solvent was demonstrated by the author in a few simple experiments. Here, increasing the concentration of the cations in the water phase and increasing their affinity for the solvent produces an increased absorption of dye anion by the solvent.

Lowering the pH value of the dyebath increase the rate of dyeing because of the higher concentration of hydrogen ions. This effect is similar for all the dyestuffs investigated. Even in the neutral dyeing of wool, hydrogen ions appear to be the preferred cations, probably because of their high affinity for the basic groups in wool.

The rate of exhaustion is increased by adding sodium chloride or other sodium salts to the dyebath; however, in some cases the addition of salt decreases the rate of dyeing, due to the formation of large aggregations of dye.

Cations of high affinity for the fiber, eg, some quaternary ammonium cations, or cationic dyes, increase the rate of dyeing even when present in small amounts.

It was found that calcium and magnesium ions (as present in hard water) have good affinity for wool in the isoelectric region and therefore increase the rate of exhaustion appreciably. Moreover, calcium and magnesium ions present to some extent in wool may have a similar effect.

•

Some Relations between the Chemical Constitution of Cibacron Dyes and Their Dyeing Characteristics

Wegmann, J, *J Soc Dyers Col 76, 205-9, April, 1960*

The reactive group of the Cibacron dyes is a monochlorotriazine residue which reacts with the hydroxyl group of the cellulose to bring about true chemical fixation; but although every dye containing a monochlorotriazine ring is a reactive dye, not every one of these is a Cibacron.

The author discusses the general formulation of the Cibacron dyes, and shows in great detail how changes in their chemical constitution affect their shade and practical application to cellulose. The effects of the constitution changes on the shade of various dyes are illustrated by colored charts. The paper, however, is restricted to those molecules which contain ionizable, anionic solubilizing groups, ie, those which could be

used as Cibacrons. The discussion is further limited to three groups of compounds, viz the azo, anthraquinone and phthalocyanine derivatives.

In the case of the azo dyes, the position of the reactive group is responsible for an important difference. If the group is in the diazo component, the dyeing can be discharged to white, but not if it is in the coupling component, because colored decomposition products remain in the fiber. Recognition of the type of dye is simple. If the reactive group is in the diazo component, the same dye can be re-formed by diazotizing and coupling the discharged dyeing; this cannot be done if the reactive group is in the coupling component.

The author points out that it is well known that a chlorine atom, when left on the triazine ring as an additional substituent, has a great influence on the reactivity of the dye, and that a whole group of dyes with completely different characteristics, viz the cold-dyeing Procion dyes (ICI), are based on this principle.

Taking a number of simple substituents in the triazine ring as illustrations, the author shows that the reactivity of a dye with cellulose decreases approximately as the basicity of the substituents increases; eg, an OH group produces dyes which are very slow to react, whereas the OCH_3 group, and also the phenyl group, give dyes which are very highly reactive.

Eight references to the literature are cited.

●

Effects of Cross-linkage in Wrinkle-resistant Cotton Fabrics

Frick, J G, Andrews, B A K, and Reid, J D, *Textile Research J 30*, 495-504, July, 1960

The treatment of cotton fabrics to impart wrinkle resistance is now a commonplace finishing operation. In addition, most of the presently used "wash-and-wear" finishing treatments are essentially only extensions of the wrinkle-resistance treatments. These treatments usually consist of the application to the fabric of methylol derivatives of ureas or other organic amides with acidic catalyst. The production of wrinkle resistance by such methods has been attributed to the formation of cross-links between the polymeric molecules of cellulose. Presumably, this cross-linking reaction occurs only with the cellulose in the accessible regions of the cotton fiber.

This cross-linking has been shown to produce the desired wrinkle resistance by changing the elasticity of the cotton fiber. The wrinkle resistance is always accompanied, at least at the present time, by losses in strength and extensibility.

The corss-linking of cellulose in cotton fabric with three wrinkle-resistance finishing agents has been investigated. The three agents used were dimethylol urea, dimethylol ethyleneurea, and formaldehyde. With all three compounds, maximum crease recovery angles are obtained at a substitution of 0.04-0.05 cross-links per anhydroglucose unit.

As crease recovery angles increase, the elongation and permanent set (as indicated by an eight-kilogram tensile load on a one-inch fabric strip) decreases. Permanent set approaches zero near 135° warp crease recovery. Changes in the load-elongation curves indicate elastic modulus increases as crease recovery angles increase.

Treatment of fabric to the same crease recovery angles with the three compounds reduces tearing and breaking strengths to different extents. Two factors contribute to strength loss in these treatments: reduction of extensibility and subsequent restriction of stress distribution due to cross-linking, and acid degradation of the cellulose by the acidic catalysts. The first of these is the major factor, but the second also causes increased loss of tearing and breaking strengths, particularly in the formaldehyde treatments. The much higher strength losses resulting from the latter treatments, as shown in the tables accompanying the paper, are caused by the higher acidity of the catalyst system used.

Full details of the experimental work are given, and eight references to the literature are cited.

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The Reactions of Cold-dyeing Procion Dyes with Cellulose

Dawson, T L, Fern, A S, and Preston, C, *J Soc Dyers Col 76*, 210-17, April, 1960

The progress made from 1895 to 1957 in devising colored compounds which can be linked to fibers by covalent bonds is reviewed by the authors.

Much practical information about the dichloro-*s*-triazinyl reactive dyes (cold-dyeing Procion dyes) is already available. There is also a growing body of information on the mechanism by which these dyes are adsorbed and fixed. This paper discusses some recent investigations which were designed to throw light on the reactions of the dichloro-*s*-triazinyl dyes with water, cellulose-model compounds, and with the primary and secondary hydroxyl groups of cellulose, studied under known and controlled conditions. A scheme for describing the fixation of these dyes under mild and severe conditions of alkalinity and temperature is presented. Paper chromatography, color reactions in presence of a pyridine-caustic soda mixture, and cuprammonium solubility have helped to provide the evidence on which this scheme is based.

The behavior of direct dyes and vat dyes can usually be explained and predicted if certain equilibrium and kinetic characteristics of the dye-cellulosic fiber system are measured. Such information is insufficient for reactive dyes. Although affinity and diffusion play an important part, the rates of reaction of dye with fiber and with water are also important. Once suitable conditions are established for combination, there is no equilibrium in this type of system, and reaction ceases only when all the dye is either bonded to the cellulose or rendered inactive by hydrolysis.

The reaction of the dichloro-*s*-triazinyl dye with water is a feature common to all methods of application and must be considered in any fundamental study of reactive-dye fixation. Under mildly alkaline conditions in the cold, only one chlorine atom per molecule is readily lost by hydrolysis, with probable formation of a monochloromonohydroxy dye. Under more severe hydrolysis conditions the dihydroxy compound is formed.

The authors admit that it is impossible at this time "to state categorically how and where reactive dyes are fixed." More information is required about cellulose itself and its absorption of alkalis.

Twenty-nine references to the literature are cited.

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Man-made Fiber Table—1960 Supplement

Anon, *Textile World 110*, 37-48, August, 1960

Twelve new synthetic fibers have appeared within the last year. Some are brand new, others are improved versions of older fibers. Several are imported.

Avril and Avlin (Am Viscose) are fundamentally viscose rayon, but with new properties. Avril (formerly Fiber 40) has wet stiffness properties comparable to cotton, and increased resistance to caustic soda. Avlin (formerly Fiber RD 100) is a multicellular fiber with bonding properties, which gives a linen-like hand to fabrics, and permits the formation of nonwovens.

Corval and Topel (Courtaulds), cross-linked cellulosic fibers, are classified as rayon but are chemically

and physically different from other cellulosic fibers. Water absorbency and swelling properties are comparable to those of cotton.

Zantrel (polynosic rayon) (Hartford Fibers Co) differs from ordinary rayon in that the molecules are twice as long and more compactly spaced. It has high breaking strength and elastic recovery.

Arnel 60 (Celanese Fibers) is an improved triacetate fiber, made by a new process, with higher strength. Vycron (Beaunit Mills) and Fortrel (Fiber Industries) (formerly Teron) are polyester fibers.

Lycra (DuPont) (formerly Fiber K) is a multifilament bundle joined together to form a monofilament yarn, with elastic properties similar to rubber.

Vyrene (US Rubber Co) is a synthetic elastomer made from polyurethane, which is superior to rubber in resistance to oxidation and drycleaning damage.

Rhovyls 55 and T (imported by Rhovyl Co) are two forms of Vinyon manufactured in France. Rhovyl 55 is shrinkable up to 55%; Rhovyl T is nonshrinkable; in blends with wool it improves crease resistance.

Merinova (Snia Viscosa) is a protein fiber imported from Italy. It has many of the characteristics of wool.

Avron (Am Viscose) is a high-strength rayon for use in apparel and home furnishings. Super L is the Company's smooth rayon staple for carpets. Avicron is a permanently crimped filament yarn.

Type 90 "Sparkling Nylon" (Du Pont) was introduced to give a sparkling effect to women's hosiery. Type 560 nylon has a dry hand and improved cover and luster.

Orlon Sayelle (Du Pont) has crimping characteristics that simulate wool. Type 37 Orlon is a carpet staple, and Type 38 tow is for use in pile fabrics. Type 62 Dacron has good dyeability and printability.

Polypropylene fibers have made great strides, and several companies have started manufacture of these fibers, eg, Reevon Olefin 800 (Reeves Bros). The new fibers are said to have improved properties in the form of higher tenacity and tensile strength and better u v stabilization.

A table is appended, giving the physical and chemical properties of the new fibers.

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Industrial Textiles

Markwell, E R, *J Textile Inst* 51, P266-7, May, 1960

The author emphasizes that industrial textiles must be created by correct evaluation of the raw materials and their manipulation, and the producer must know the end-uses and the materials with which the fabrics will be used. The various industrial uses of several synthetic fibers are listed.

Nylon has a high strength-to-weight ratio, which is the main reason for its use in industry; the largest consumption is in the rubber industry, followed by coated fabrics, and electrical and filtration equipment. In the rubber industry, nylon has made possible lighter articles of good flexibility, and has found increasing use in tires, particularly aircraft tires, because of its very high shock absorption and fatigue resistance. In tubeless tires, a coarse nylon monofil fabric is used to give added abrasion resistance at the point where the cover grips the wheel rim.

In belting, quite dramatic results in the way of long life, flexibility and elasticity have come from the use of nylon. Coated tarpaulins can now be much lighter and more flexible, and therefore much easier to handle. Of particular interest are "dracones", enormous sausage-like containers which can be filled with lighter-than-water liquids and towed by tugs. Smaller versions can be carried on trucks and can be rolled up when not in use.

Terylene has found many of the uses already mentioned for nylon. It is also made into a very popular sail-cloth, and has made great strides in the electrical industry for insulation purposes. Its excellent acid resistance makes it eminently suitable for certain types of conveyor belt. Another use is in circular-woven hose for fire-fighting and for conveyance of chemicals.

Glass fiber has opened a new field in glass-fiber-reinforced plastics, giving high strength and low stretch with dimensional stability at high temperature. Because of its resistance to corrosion, glass fiber finds outlets in certain filtration fields, and is used for electrical insulation.

Saran and PVC have a particular use in filtration where high chemical resistance and toughness are required.

Dynel has been used to protect plastic materials from attack, and has also been shaped over a former when warm, retaining the shape on cooling (eg, for separators for lead-acid batteries).

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Newer Developments in the Field of Dyeing with Sulfur Dyestuffs

Musshoff, H, *Can Textile J* 77, 43-6, 49, June 10, 1960

The author first reviews briefly the historical background of the sulfur dyes, starting with "Cachou de Laval."

Sulfur dyes ordinarily are insoluble in water and require a strong alkali and a mild reducing agent to put them into solution. Sodium sulfide, which has both of these properties, has been the standard dissolving agent. It has the disadvantage, however, of harshening rayon and even dulling it in certain cases. To remedy this difficulty, Cassella brought out the "Immedial Leuco" dyes, which contain the alkali and the reducing agent incorporated in the dyestuff. These were followed by Geigy's "Eclipsol" dyes and Cassella's "Immedialsol" dyes, both mixtures of selected sulfurs with alkali and reducing agents.

These new dyes were especially offered for rayon dyeing, and gave a better hand to the goods. The stability of the "Immedial Leuco" and "Immedialsol" dyes was limited, however, and they deteriorated on storage. Cassella then produced the "Immedial Special" dyes, a range of sulfurs nearly free from sulfide, which were dyed with soda ash and Rongalite C. These dyes were stable to storage, and rayon dyed with them had a good luster and a soft hand.

Water-soluble sulfur dyes, "Immedial Hydrosols", the latest discovery in the sulfur line, are made from sulfur dyes in which the mercapto groups are converted into thiosulfo acids by means of sulfite or bisulfite. These dyes form true solutions in hot water, but have practically no affinity for cellulosic fibers. By the addition of an alkali and a reducing agent to the solution, the sulfonic acid groups are changed back to mercapto groups, and the dyes have affinity for the fiber. It is not necessary to add sulfide; either sodium hydrosulfide (NaHS), soda/glucose, soda/Rongalite C, or soda/hydrosulfite may be used.

Dyeing on the jig with sulfur dyes is unsatisfactory, as the penetration is poor and uniformity from batch to batch is difficult. The pad-jig process is preferred. "Immedial Hydrosol" dyes are padded without a reducing agent, at 60-80°C, and alkali, reducing agent and salt are added to the jig, which is run at 60-90°C.

These dyes may also be applied by a pad-steam process. The goods are run through a first padder containing the dye, then through a second padder containing the alkali and reducing agent, and are finally steamed for 30-40 seconds at 102°C.

In package dyeing, the author suggests starting in a cold bath with the dye only, then adding the reducing material and gradually raising the temperature to 60-90°C, and finally adding salt.

Full details of these various processes are given.

Proceedings of the
American Association of Textile Chemists and Colorists

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October 17, 1960 No. 21

CORPORATE MILL MEMBER LUNCHEON*

Sponsored by the Southeastern Section

SPEAKERS
WELDON G HELMUS, president, AATCC
A HENRY GAEDE, vice president, Southern Region
CHARLES A SYLVESTER, chairman, Executive Committee on Research
GEORGE P PAINE, executive secretary

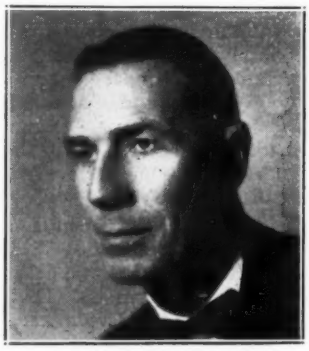
WELDON G HELMUS: Mr Chairman, Members and Guests of the Southeastern Section—

I want to take this opportunity to thank the officers of the Southeastern Section for arranging this luncheon and for inviting us to be here on this occasion. It is a great privilege for the national officers of AATCC to join with you in honoring the Corporate Member mills.

While we will address our remarks to the mill segment of the Southeastern Section, I hope that what we have to say will be of interest to all those present, since AATCC, in some way or other, reaches every corner of the textile industry.

When some of us first discussed the program for this meeting, we decided that there was wisdom in the old adage that says a preacher can't save any souls after twenty minutes. Furthermore, we concluded that this advice also applied to selling AATCC Corporate memberships. However, we think we have even improved on that idea. We are going to try to hold it to twenty minutes, but to give you a change of pace, four of us are going to split that time between us in an attempt to highlight AATCC in those areas which we feel are particularly important.

Since I am a mill man, I should like to pose the question of whether my company could have gotten along over the years without AATCC. Perhaps it might be considered an understatement to say that it would have been difficult, except that other mill executives I have talked with have told me it would be impossible for them to conduct their businesses without AATCC's technical authority to draw on. I say technical authority because of the Association's committee machinery capable of bringing together experts of the highest competence to investigate and solve many of the perplexing problems constantly arising in our industry. The time and talents of the several hundred people serving on AATCC's Research Committees defy any attempts to come up with a dollar estimate of what this represents. I can assure you it would be far beyond the means of any one company to employ the combined know-how of the working committees of AATCC.



WELDON G HELMUS
President

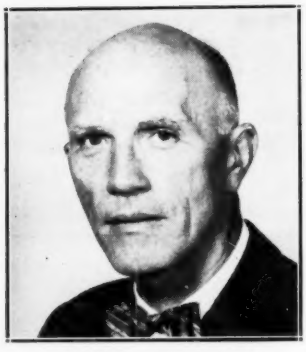
Many of you are either personally active in the Association or have people in your company participating in its affairs. To me this is another important aspect of what AATCC offers. It has been my policy to encourage the key men in my organization to hold membership in the Association. It is good for their morale to be members of a recognized and respected professional and scientific society such as AATCC. It provides sources of information which would otherwise not be available to them and from which they benefit in their jobs. I feel it is good business for every company to take the initiative at management level in making it known that the company is AATCC minded.

This is an age of science and technology. Its challenges and complexities are far beyond the capacity of a single individual or even a single company. It is an age of cooperative effort and team work. AATCC, as a technical society, has been responsive to the growing needs of our industry to provide the means for individuals and companies to work together in a common purpose.

The Association is now almost forty years old, yet in the past twenty years the membership has nearly tripled so that today, we stand at 7,000 members. Twenty years ago, there were 33 Corporate members on the rolls. Today, there are 300. This in itself indicates that the AATCC has become a vital part of the life of our industry and that it is rendering an important and useful service to the textile community.

AATCC has maintained a position of technical leadership through the support of your companies and with the dedicated and tireless efforts of many of our members. One such member is the chairman of the Executive Committee on Research, which is the top policy and planning com-

*Held in the Empire Room, Atlanta Biltmore Hotel, Atlanta, Ga, on September 9, 1960 with C Russell Gill, Southeastern Section Corporate Membership Committee chairman, presiding.



CHARLES A SYLVESTER
Chairman
Executive Committee on Research

mittee responsible for AATCC's research and technical program. He has proved himself over the past four years, while serving as chairman of the Technical Committee on Research, which directs the operations of some 90 research committees. He is going to tell you briefly something about the Association's technical activities.

Mr Charles A Sylvester.

* * *

CHARLES A SYLVESTER: Since this is a luncheon to honor our Corporate Member mills, I would prefer that you didn't think of me as a supplier. Admittedly, this is hard for me to escape since I am with the DuPont Company, but when I put on my AATCC hat, I like to think of myself as occupying a privileged position, enabling me to look across the broad front of AATCC's technical program as it benefits all of us in the textile industry.

AATCC belongs to the textile industry. In fact, it *is* the textile industry, and for that reason, I think we sometimes take the Association for granted.

AATCC test methods are an integral part of our industry. These test methods are used to control and check practically all of the dyes, finishes and chemicals produced in the United States which are used in textiles. These test methods are your yardstick of measurement which provide a common language between the sales department and the laboratory, the laboratory and production, the buyer and the seller.

As Mr Helmus pointed out, AATCC test methods represent the best thinking of the industry. We have over 500 committee members serving on some 60 active research committees and subcommittees. There are 30 more committees in a stand-by status ready to be activated whenever problems occur in their fields.

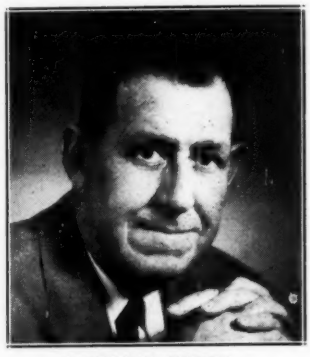
At the technical session tomorrow afternoon, we will report on five research committee projects. I would like to name these just to give you an idea of the breadth and depth of our technical coverage. They are: Wash and Wear; Identification of Finishes; Evaluation of Finishes for Resistance to Staining and Soiling; Colorfastness to Washing; Stream Sanitation. I hope you will be present to hear the discussion.

We as an Association, no more than your own company, cannot live in today's economy without cooperative relations with similar organizations with which we share a common interest. Among these are such associations and societies as ASTM, ASA, TAPPI, the Society of Automobile Engineers, the National Retail Merchants Association, the National Institute of Drycleaning, to name but a few. At the international level, we work closely with the International Organization for Standardization, The Society of Dyers and Colourists in England, and our opposite numbers in Canada. Then there is the Quartermaster Corps and the Federal Government.

Only recently, we named a representative to Committee CS11-41, Moisture Regains of Cotton Yarns, of the Commodity Standards Division of the Department of Commerce. We knew that the industry was not satisfied with this standard, and we welcomed the opportunity to contribute the Association's talents to this project. However, our representative to this committee has voting power on the test methods to be used in connection with the standard, but has no authority to speak for the Association on the standard itself.

While we are on the subject of standards, I would like to state the Association's official position. Our business is the development of standard test methods—not performance standards. This is not only Association policy. Our Bylaws prohibit us from writing or endorsing *any* specifications or standards. There has been some discussion in our Council and committees as to whether this should not be modified to permit the Association to represent its members on committees of standards-writing organizations. I can assure you, however, that this policy will not be altered unless a preponderance of our membership favors such a change.

We do encourage the use of our test methods by your companies, other societies and associations, trade



A HENRY GAEDE
Vice President
Southern Region

groups and government agencies. That is what our test methods are for. But I want to make it entirely clear that when an organization uses an AATCC test method as the basis for a standard, AATCC in no way endorses the standard that has been set. There has been some misunderstanding with respect to the L22 Standards of ASA which use many AATCC test methods as reference points. Again, I want to emphasize that this does not imply AATCC's approval or official endorsement of L22.

We rely on you heavily to keep us informed of your needs and ways in which AATCC can be of help and service to you. We welcome your suggestions for improving our technical program.

Again, I want to say that this is *your* society and it is *our* job to see that you benefit from it to the fullest extent.

* * *

MR HELMUS: Thank you, Mr Sylvester.

AATCC is organized into four geographical Regions. The Southern Region is made up of four Sections—your own, Piedmont, South Central and Washington.

Last year, H Gillespie Smith, your national vice president, had to step aside for reasons of health and Henry Gaede was appointed to fill out his term. By popular vote, your Region elected Mr Gaede to this office in 1960. I know you will agree with me that he has served you well and that he has been a vigorous spokeman in your behalf in AATCC affairs.

Mr Gaede.

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A HENRY GAEDE: My assignment is to speak briefly to you concerning the individual member of AATCC. It would be easy to quote figures regarding growth of AATCC

in the South, but you, who are members, know of this and of the privileges of membership, so I will address my remarks to the representatives of mill management present and attempt to show the advantage to the textile corporation of individual membership.

Our association is an organization of textile chemists, dyers, and technically trained salesmen. The voting rights and all other powers are in the hands of the individual members. As it is the professional organization of textile chemists in the country, many of your dyers, finishers, and chemists have joined of their own volition. But apart from this it is to your interest to encourage them to join AATCC. Our members have developed and are developing the test methods used to measure your fabrics. The degree of participation of your qualified personnel in the work of AATCC research committees largely determines the extent of your influence on test procedures. Despite a striving for objectivity by nearly all technically trained people, it is quite likely those with a textile background will be more sympathetic towards the industry's problems. This association needs more Southern mill men on its research committees. If they do not serve, new test methods will be devised and old ones modified by the technically trained men of your suppliers, testing laboratories, government agencies, and your customers. And should this organization ever get into the business of aiding in the establishment of standards of performance, the participation of mill personnel will be of even greater importance to you. There is an old bit of doggerel that goes:

"Some join a church to find a lover,
Some go there their sins to cover,
Some go there to sit and nod,
But damn few go to worship God."

People join AATCC for many reasons, just as they join a church for many reasons; but as the real function of church is the worship of God, so the real function of AATCC is its technical activities.

Southern membership in AATCC has grown, but not in proportion to the growth of the industry. Several years ago Gilly Smith and I determined we would do all we could to increase the influence of the textile industry of the South in AATCC affairs. Of course participation in AATCC activities is voluntary, but we must rely on the management of industry to make available the time and to help financially. The benefits may

GEORGE P PAINE
Executive Secretary

seem intangible, but I firmly believe both you and your men will profit if you will encourage them to attend our meetings and to take part in our technical activities; regional and national. Support your young men. Early in the nineteenth century, Berzelius, the great Swedish chemist, visited Dumas in France. Berzelius asked Dumas, "How old are you." Dumas replied, "Thirty-five." Berzelius said, "You have just twenty years to finish your work." Berzelius was fifty-five. *Science* magazine, a couple of years ago, made a statistical study of the age at which 2,000 of the world's leading chemists did their original work. The average age was thirty with most of the best work being done between thirty and thirty-five. Now I am not saying we are all washed up at fifty-five. I am fifty-five. But youth does have the enthusiasm, the originality of thought required for good scientific and technical work.

Help us to help you. AATCC can better serve you if your qualified personnel takes part in and directs its activities.

Thank you.

* * *

MR HELMUS: Thank you, Mr Gaede.

An association of this size needs some full-time people to keep the machinery oiled and running. While we are an organization of voluntary workers, we look to a full-time staff to maintain our service headquarters and to help us with our appointed tasks. I would now like to introduce our executive secretary, George P Paine.

* * *

GEORGE P PAINE: I would like to discuss briefly the structure of AATCC and how the Association's Headquarters fits into the national organization. Of course, some of you are familiar with this set up, but our specially invited guests who are here today might be interested to know something about this aspect of the Association.

First let me say that AATCC is a technical society, composed of individual members, which is run by the members and for the members. They are, in effect, my bosses—and the last time I counted, there were 7,243 of them.

They are dyers, finishers, scientists, salesmen, laboratory technicians, management executives, buyers, educators, home economists—in fact you probably couldn't name a category that isn't listed on the membership roster. They are the stockholders of AATCC. They elect the Association's officers. Their board of directors is the Council which is meeting here this afternoon.

By corporate standards, AATCC is not large, but by association standards, it is one of the leading societies in the country. One of the reasons for its reputation and prestige is that its membership is active and articulate. I doubt if you would find 7,000 stockholders in any corporation who are as genuinely interested and concerned with the welfare of their organization as are the members of AATCC.

From the high degree of technical competence enjoyed by AATCC, Corporate management benefits directly through their own company people who are active association members. Management has recognized the contributions made by AATCC in advancing the technology of the industry, and about 300 companies are giving their financial support to the Association's research and technical program. These funds are used for special research projects conducted by Research Committees and for the maintenance of the Technical Service Division at National Headquarters.

From a small volunteer group, the Association has emerged over the years as a large national body, requiring by its very size, that its affairs be handled in accordance with good business practice. With a far-flung organization, embracing 14 Sections and well over a hundred national committees, management of the Association is becoming increasingly complex.

However, I want to emphasize that AATCC is not operating in a vacuum. Its practices and policies are constantly being reviewed objectively by its Council, officers and adminis-

(*concluded on page 43*)

10th ADR AWARD TO SALVIN, WALKER, AND ADAMS

PRESENTATION of the tenth annual American Dyestuff Reporter Award was made by President Weldon G Helmus on Thursday, October 6, during the Awards Luncheon at the recently concluded 1960 AATCC Convention held at the Hotel Sheraton, Philadelphia, Pa.

The 1960 award was for the paper, "Relation of Dye Structure to Properties of Disperse Dyes", by Victor S Salvin, Ruth A Walker and John R Adams Jr, which was delivered by Dr Salvin before the Piedmont Section at Winston-Salem, NC, on April 11, 1959. The paper appeared in the *Proceedings* in the July 13, 1959 issue of *American Dyestuff Reporter*.

Judges for this year's contest, appointed by the AATCC Publications Committee are: Carl Z Draves, Polytechnic Institute of Brooklyn, *Chairman;* Paul B Stam, J P Stevens & Co; and Charles R Williams, Monsanto Chemical Co.

The Award was endowed by the Howes Publishing Company, Inc, as a memorial to Alfred P Howes, founder of the *American Dyestuff Reporter*. Its purpose is to encourage the presentation of the best possible papers before local and national meetings of the Association. The Award, $200 annually, is presented to the author or authors of the paper considered best in the opinion of the judges. Any technical paper presented before a local or national meeting of the AATCC and published in the *Proceedings* and they appear in the *American Dyestuff Reporter* is eligible with the following exceptions: Intersectional Contest papers, papers by employees of the AATCC, reports of research committees. It is a condition of eligibility that the paper have its first publication in the *Proceedings*. Papers published in the *Proceedings* from July 1st of one year to June 30th of the next year are considered in each judging period.

The paper, "Progress in 'Wash-and-Wear' Wool", by John F Krasny and John Menkart, Harris Research Laboratories, was second in the judging. This appeared in the December 14, 1959 issue.

Third in the judging was "The Demetalization, Leveling and Rechroming of Chrome-dyed Wool Pieces" by Henry E Millson, American Cyanamid Co, which appeared in the September 7, 1959 issue.

Fourth place went to Prof Robert J Peirent, Lowell Technological Institute, and two LTI students, James Casey and Georgia Dadoly, for the paper "Dyeing Dacron by Emulsions of Solvent Solutions of Dyes", which appeared February 8, 1960.

Victor S Salvin is in charge of the

* * *

Basic Dye Laboratory for the Celanese Fibers Co, a division of Celanese Corp of America, in the Application and Product Development Laboratories in Charlotte, NC. He joined Celanese in 1936.

Born in Elizabeth, NJ, Dr Salvin was raised in Connecticut and now resides at 5559 Robin Hood Road, Charlotte. He received his BS and MA degrees from Wesleyan Univ in 1928 and 1929, respectively, and his PhD from Yale University in 1935.

His work has been primarily in the fields of synthesis of dyes, development of new dyeing processes, and studies of the dyeing processes on hydrophobic fibers as well as the phenomenon of fading of dyes to light and atmospheric conditions.

Dr Salvin is the author or co-author of some 40 patents representing new dyes and novel dyeing processes. He is also the author of numerous published articles on the dyeing of fibers, fastness of dyes, dyeing processes of blends as well as fundamental studies of kinetics of dyeing, which have appeared in *American Dyestuff Reporter* and *Textile Research Journal*.

He is a member of AATCC, the American Chemical Society, and Sigma Xi. In 1957, Dr Salvin was a lecturer on tour for ACS on the subject "Dyeing of Hydrophobic Fibers".

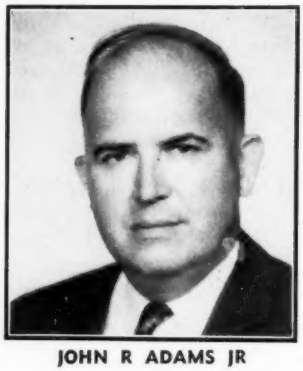
His work with AATCC has included that as chairman of the Committee on Atmospheric Fading; chairman of the Lightfastness Subcommittee in Relation of Atmospheric Contaminants to Lightfastness; chairman of the Piedmont Section Research Project studying mechanism of carrier action; member of the Piedmont Section's Program Committee; and member of the Committee on Wet and Dry Pressing.

Dr Salvin is married and has two children, a boy 10 and a girl 5.

His hobbies include golf, bridge and mystery stories.

VICTOR S SALVIN

RUTH A WALKER



JOHN R ADAMS JR

Ruth A Walker has served as an instructor in chemistry at Hunter College of the City of New York since Sept, 1957.

Born in New York, NY, on July 11, 1920, Dr Walker was graduated with honors from Vassar College in 1942, where she majored in chemistry and minored in bacteriology and physiology. After attending Yale University from July 1942 to November 1944, she was awarded her PhD in organic chemistry.

Her career has included assignments at Chas Pfizer & Co, Brooklyn, NY, as an assistant in chemistry in 1945; at the Department of Therapeutics, New York University College of Medicine, as an assistant in therapeutics from 1945 through Janu-

ary 1950; at Celanese Corp of America, Summit, NJ, as a senior research chemist from 1950 to 1956; and at Johnson and Johnson, New Brunswick, NJ, as a senior research chemist.

Dr Walker's work at Johnson and Johnson was in the field of synthetic detergents.

In her six years with Celanese, she worked in the Dyeing and Finishing Section headed by Fred Fortess, winner of the sixth American Dyestuff Reporter Award in 1956 for his paper "Dyeing, Finishing and Heat Treating Arnel Triacetate". Dr Walker's fields of endeavor included: the evaluation of the dyeing and fastness properties of a number of dyestuffs and, on the basis of this information, the synthesis of new dyestuff structures to meet specific needs; the establishment of relationships between structure, color, and fastness properties; the synthesis of special configurations for use in a resin aftertreatment designed to improve washfastness; an investigation of chelateable forms; a study of compounds that could be used as inhibitors to prevent gas fading; the characterization of a new fading phenomenon which has been designated as "O" fading; the determination of the cause of this new type of change and of methods to prevent its occurrence on dyed fabric, including the synthesis of inhibitors and of resistant dyestuffs.

Dr Walker has co-authored two patents and three papers other than the present Award-winner. U S Patent 2,827,356, "Anthraquinone Dyestuffs", bears the names of Drs Walker and Salvin; U S Patent 2,527,156, "Alkamine Esters of 1-Aryl-2, 5-Dialkylpyrrole-3,4-Dicarboxylic Acids" was co-authored by Jackson P Sickels.

In conjunction with co-workers at Celanese, she contributed to the following papers: "Improved Washfastness of Acetate-Rayon Blends", by V S Salvin, A B Conciatori, R A Walker, G C Ward, and F Fortess, *Am Dyestuff Reptr 43*, 764 (1954); "Service Fading of Disperse Dyestuffs by Chemical Agents other than the Oxides of Nitrogen", by Salvin and Walker, *Textile Research J 25*, 571 (1955); and "Correlation between Colorfastness and Structure of Anthraquinone Blue Disperse Dyes", by Salvin and Walker, *Textile Research J 30*, 381 (1960).

Dr Walker holds membership in ACS, New York Academy of Science, Sigma Delta Epsilon, Phi Beta Kappa, and Sigma Xi. She is an active member of the Appalacian Mountain Club, having served as treasurer for the New York Chapter. She is an expert white-water canoeist, having been on many wilderness canoe trips including those in Canada and Idaho, and an amateur photographer.

John R Adams Jr's work with Celanese Fibers Co includes synthesis of dyes, inhibitors, and chemical problems of dyeing, including azoic dyeing.

Born in Washington, DC, Dr Adams received three degrees from the University of Maryland: BS, chemistry in 1934; MS, organic chemistry, 1935; and PhD, organic chemistry, 1938.

Prior to joining Celanese, he was employed at the National Cancer Institute of the National Institute of Health (organic synthesis, biochemistry), Bethesda, Md; Columbia Univ, where he worked on the OSRD project on flameproofing cotton fabric; and at General Aniline & Film Corp's Grasselli, NJ, plant, where he worked on synthesis of dye intermediates.

He has had articles published in the *Journal of the American Chemical Society* (organic synthesis, sterols) and *Journal of the National Cancer Institute* (cancer research). He also has authored or co-authored U S Patents covering dyes and inhibitors.

His memberships include AATCC, ACS, Alpha Chi Sigma, and Sigma Xi.

Corporate Mill Member Luncheon———

(*concluded from page 41*)

trative committees to keep abreast of modern association management.

I am a member of two professional societies made up of men, who like myself, are employed to run the staff organizations of similar societies and of trade associations. From my observations, a comparison between AATCC and other like groups would give our Association a very good mark. While there is always room for improvement, I think we have every right to be proud of our good governmental and administrative machinery and the quality of service that is rendered to the members and to the industry.

I believe the principal ingredient of a successful technical society is the concept of service. I see the role of our National Headquarters' staff as one of service to the Association. and the role of AATCC as one of service to the textile industry. This provides a common goal for both members and the Association's employees to work toward.

As a service organization, our job at National Headquarters is to provide administrative and technical support to the Council, the officers, the many committees, the Sections and the members, both individual and corporate. Our function is to help those members who are active in various capacities, enabling them to do their jobs more effectively and efficiently.

While the staff looks to the Executive Committee of the Council for basic guidance and direction, it is our responsibility to use our initiative, experience and facilities to implement the various programs underway. We serve as a clearing house for information and provide the continuity needed to assist the Association's officers and committee personnel. With Sections in the Mid-West and on the Pacific coast, in the Central Atlantic, New England and Southern Regions, the National Headquarters organization supports an over-all, nation-wide effort of AATCC to advance the science and technology of textiles.

I would like to leave you with the assurance that we on the National Headquarters staff are committed to a philosophy of service to help you achieve the continued vigorous and dynamic growth of AATCC.

* * *

MR HELMUS: Thank you, Mr Paine.

Our dues income from Corporate members is just under $60,000 a year and provides for about one-third of the Association's annual budget. We are endeavoring to give you the most for your money. Your investment in AATCC is paying good dividends.

It naturally follows that with more funds, we could undertake a broader research and technical program. There is much to be done. The decision as to how much can be done depends largely on your continued and increased support.

I want to thank you for the hospitality you have extended to us today. It has been a privilege for us to address this group.

Metropolitan

METROPOLITAN SECTION held its first meeting of the new season on September 16 at Kohler's Swiss Chalet, Rochelle Park, NJ. Attendance was approximately 150.

Speaker of the evening was Frank Perutz, consulting engineer for the Reggiana Company of Italy. In his paper, entitled "Automatic Screen Printing", Mr Perutz cited statistics which showed that 458 automatic screen printing machines are operating throughout the world, of which 277 are in Europe and only 30 in the United States. Automatic screen printing was compared with roller printing of quality prints which are not mass produced in terms of labor costs, color costs, production, and flexibility of operation. The specific features of the Reggiani, Buser, Comerio, Stork, Thorne, Zimmer and Ichinose machines were discussed. Only the Reggiani and Buser machines have been producing on a large scale for several years in the U S. Mr Perutz also made the point that automatic screen printing machines are an integral part of most European roller printers while in the U S only some manual screen printers have converted to this automation.

Following his talk, Mr Perutz was joined by O J Guttman of Cosa Corp and Peter Hardy of Stonehenge Processing Co to form a panel for the discussion of various automatic screen printing machines.

A Nominating Committee of George A Jonic, American Cyanamid Co; Carl Brubaker, Standard Bleach-and Printing Co; and Kenneth A Howry, Fairchild Publications, was named.

The next meeting of the Metropolitan Section will be held this Friday, October 21, at Kohler's Swiss Chalet. Speaker will be Frank C Rippner, Union Carbide Corp, who will discuss "Dyeing and Finishing of Wool/Dynel Blends".

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Delaware Valley

DELAWARE VALLEY SECTION'S November 4th meeting at Beck's on the Boulevard, Philadelphia, will include a visitation to the Torresdale Water Works. Busses will leave Beck's at various intervals in the afternoon.

Technical talks on water purification and stream pollution will be discussed by experts at the meeting. Water Commissioner Samuel Baxter will be a guest.

Frank Perutz

George H Arris

Rhode Island

RHODE ISLAND SECTION held its annual Management Meeting on Friday evening, September 23 at the Wannamoisett Country Club, Rumford, RI, with approximately 100 members in attendance.

George H Arris, financial editor of the *Providence Journal Bulletin*, spoke about "Business Prospects in the Year Ahead". Mr Arris is perhaps most noted for stories he wrote three years ago on "What's Wrong with Rhode Island", which touched off a successful program to improve the economic climate of the state and develop new industry.

The Rhode Island Section will meet next on October 28 at the Providence Engineering Society quarters. The December 2 meeting has been switched from Johnson's Hummocks to the Biltmore Hotel in Providence.

South Central

SOUTH CENTRAL SECTION held its initial meeting of the new season on Saturday, September 17, at the Hotel Andrew Johnson, Knoxville, Tenn, with Jack McNab, Mac Chemical Co, serving as meeting chairman.

At the technical session, which attracted 40 persons, Charles Braswell, Seydel-Woolley & Co, served as moderator for an open forum, at which time questions pertaining to textile wet processing were discussed.

A social hour in the Andrew Johnson Room was followed by a banquet in the Colonial Room, which attracted 55 persons. Speaker of the evening was Gus Manning, publicity director for the Athletic Department at the University of Tennessee, on the subject "The Football Outlook for the Southeastern Conference". He is the Brother of J T Manning of Standard Knitting Mills.

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Northern New England

WITH more than two hundred members and guests in attendance, the Northern New England Section held its annual outing at the Wachusett Country Club, West Boylston, Mass, on September 9. Under the direction of John R Markgren, W C Durfee Co, and Donald H Thomas, National Aniline Co, an active program of golf, softball, horseshoe pitching, fly casting, and putting was enjoyed by the group. The athletic activities were followed by a cocktail hour and a dinner at which the following awards were made:

GOLF

Members 0-13
1st Gross—Francis A Murphy, Stevensons, Inc
2nd Gross—Stanley Fagan, Carleton Woolen Mills
1st Net—George O Linberg—Melrose Chemical Co
2nd Net—John E Ormiston Jr, Sandoz, Inc
Members 14-23
1st Gross—Harold Koblenzer, J P Stevens Co
2nd Gross—John S Adamowicz, Cyril Johnson Woolen Co
1st Net—Joseph E Nolan, Glyco Products Co
2nd Net—Ernest H Allard, Nopco Chemical Co
Members 24-Up
1st Gross—John S Robinson, Becco Chemical Div
2nd Gross—David A Searle, Arkansas Co, Inc
3rd Gross—Leroy W Baines, Bryant Chemical Co
1st Net—Gerald F Quigley, Agawam Dye Works
2nd Net—Philip D Caine, Becco Chemical Div
3rd Net—Francis J Coleman, Theis Dyeing Co
Guests 0-Up
1st Gross—William A Green, Hilton Davis Chemical Co
2nd Gross—S Verostek
1st Net—J Tracy
2nd Net—George Cordeu, North Billerica Co

3rd Net—Jim Gibbs, Chicopee Mfg Co
4th Net—B Walker
Snake Killer Award
Wilbur Williams, General Dyestuff Co

SOFTBALL

Score 11-6
Winning Team
Chas Fagan, C H Masland & Sons
Walter Larkin, United Aniline Co
Bill Sherman
James Aronson, United Aniline Co
Bill O'Brien, Vertipile, Inc
Clyde Newland, Newpro Chemical Co
Ed McNamara, Hamilton Chemical Co
Dick Montanaro, Ciba Co, Inc
Joe MacNeil, Althouse Chemical Co
Herb Smaha, MKM Knitting Mills
Umpire—Harold Wood, Dexter Chemical Co

PUTTING

1st Place Tie—Henry X deRedon, Ciba Co, Inc
Frank Kraft, Becco Chemical Div
2nd Place—D Capiello

FLY CASTING

Raymond W Tablowski, Derby Co

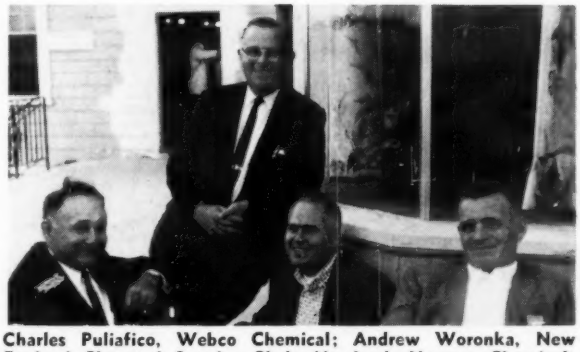
HORSESHOES

Singles—Mark Brannt
Doubles—William A Stickney, E J Feeley Co; Henry J Carlin, E J Feeley Co.

The next meeing of the Section will be held at Motel 128 in Dedham, Mass, on October 21. The meeting will comprise a panel discussion on the subject of customer service.

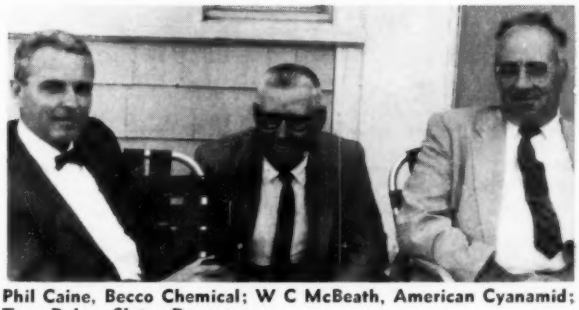
HEAD TABLE AT NNE OUTING BANQUET—(L to r): Jack O'Neil, Dow Corning Corp, National Councilor; John Markgren, W C Durfee Co, outing cochairman; Don Thomas, National Aniline, outing cochairman; Ed McNamara, Hamilton Chemical Co, vice chairman; Bob Robinson, Bachmann Uxbridge Co, chairman; Al Rant, Laurel Soap Mfg Co, chairman, Western New England Section; Jerry Quigley, Agawam Dye Works, National Councilor; Joe Panto, Fabric Research Labs, secretary; Ben Gesmer, Dyecraftsmen Inc, sectional committeeman

Morris Campbell, Tom Walwood, and Bill Bushnell, QM Research and Development Command



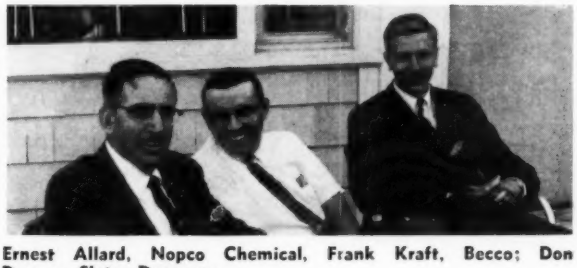
Charles Puliafico, Webco Chemical; Andrew Woronka, New England Chemical Supply; Clyde Newland, Newpro Chemical; Robert Walker, Stevens Linen

Jerry Quigley and Howard Fiest of Agawam Dye; Tom Hadfield, Thies Dye



Phil Caine, Becco Chemical; W C McBeath, American Cyanamid; Tom Daley, Slater-Dempsey

Ernest Allard, Nopco Chemical; Ed Lafferty, Milligan & Higgins; Larry Rossiter, Nopco Chemical

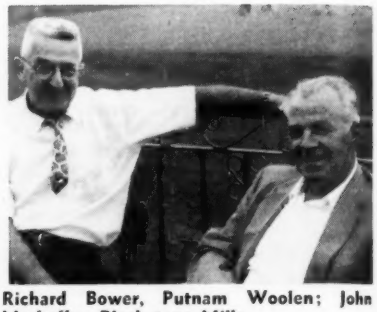


Ernest Allard, Nopco Chemical, Frank Kraft, Becco; Don Dwares, Slater-Dempsey

Northern New England Section Outing———

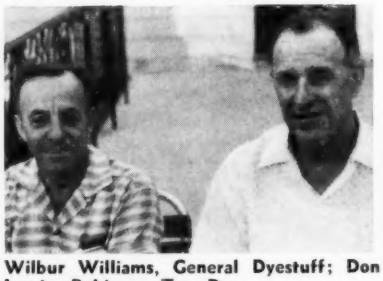
John Tracey and Haven Morrison, Blackstone Mills

Henry Schuffels, Blackstone Mills; Milt Washburn, J M Washburn Co



Richard Bower, Putnam Woolen; John Marhefka, Blackstone Mills

Warren Dewing, General Dyestuff; Ted Connell, Joan Fabrics



Wilbur Williams, General Dyestuff; Don Lewis, Robinson Top Dye

Joe Gerhard and Frances Burke of Cranston Print Works

Wilbur Williams, General Dyestuff, winner of the Snake Killer Award (high gross)

Jerry Quigley, Agawam Dye Works, low net, members—Class C

Harold Koblenzer, J P Stevens Co, low gross, members, Class B

John Adamowicz, Cyril Johnson Woolen Co, 2nd low gross, members, Class B

Francis A Murphy, Stevensons, Inc, low gross, members

Phil Caine, Becco, 2nd low net, members, Class C

George O Linberg, Melrose Chemical, low net, members

Ernest Allard, Nopco Chemical, 2nd low net—Class B

"South Carolina" Section

AT a meeting held in Charlotte, NC, on September 23, 1960, a new section of the AATCC was given final approval. Some 40 interested Piedmont Section members, having previously petitioned the Council and received approval for a new section "based on the State of South Carolina", met and gave unanimous approval to such formation. The new section will be effective January 1, 1961.

The following nominating committee was appointed to form a slate of officers for the new section: Joe Lindsay, Clemson College, chairman; J C King, Metro-Atlantic Corp; Linton C Reynolds, Riegel Textile Corp; John Neeley, Reeves Bros; Jack Emerson, Sandoz, Inc. Richard E Rettew, Polymer Southern, is secretary pro tem.

At the same time, a motion was passed to ask the Piedmont Section to consider having its already scheduled Winter Meeting in Greenville on January 21 as a joint meeting. The Piedmont Section later voted to have its next three meetings as joint meetings to allow the new section based in South Carolina and another new section based in upper North Carolina and lower Virginia to have ample time to effectively organize.

AATCC president Weldon G Helmus was an interested spectator at the meeting which formalized the formation of the new section based in South Carolina.

It is expected that an official name for the section will be selected at its first official meeting in January.

AATCC Deceased

Member	*Section*
MARVIN W MOORE Lenoir Hosiery Mill Lenoir, NC	Piedmont
JOSEPH BRENNAN Nyanza Color & Chemical Co 109 Worth St New York 13, NY	Metropolitan

WILLIAM D APPEL, editor of the Technical Manual, advises that there have been unavoidable delays in the publication of the 1960 edition, but it is anticipated that it will be mailed shortly.

Elected to Membership

No designation after name indicates Senior
(A) indicates Associate
(J) indicates Junior
(S) indicates Student
* indicates transfer from another class of membership.

September 15-21, 1960

NEW ENGLAND REGION

Northern New England Section

*Walter E Bill**
*Joseph A Bryant Jr**
*John Evans**
*William G Evans**
*Laurence F McMahon**
*John F Peledge**
*Walter B Warren**

Rhode Island Section

John F Ritchie
James E Murray (J)

Western New England Section

Roland A Boyer
Benn R Eckstein
Mitchel Hirschkorn
William F Lapierre
Allen Leibowitz
Ralph F Steigmeyer
William Thal

CENTRAL ATLANTIC REGION

Metropolitan Section

Frank J Leger

SOUTHERN REGION

Piedmont Section

Robert A Fields
E Henry Pittman
Thomas C Allen (J)
Floyd A Goodwin (J)

South Central Section

Carolyn A Werman

Southeastern Section

Reggie D Clay Jr
Robert M Kent
Charles E Wade (J)

Washington Section

*Kathryn M Towne**

NOT AFFILIATED WITH SECTIONS

Kuno H Wittlinger
Hiroshi Mitani (A)
*Kulathinal M Matthew**

AATCC Calendar

COUNCIL, COUNCIL COMMITTEES, RESEARCH COMMITTES

Nov 17-18 (Sheraton-Atlantic Hotel, New York, NY); Nov 17—Council Committees and Research Committees; Nov 18 (AM)—ECR, TCR; Nov 18 (PM)—Council and Annual Meeting

Jan 19-20 (Sheraton-Atlantic Hotel, New York, NY); Jan 19—Council Committees and Research Committees; Jan 20 (AM)—ECR, TCR; Jan 20 (PM)—Council

NATIONAL CONVENTIONS

Sept 28-30, 1961 (Hotel Statler, Buffalo, NY); 1962 (Atlanta Biltmore Hotel, Atlanta, Ga); 1963—Boston; 1964—New York; 1965 (Conrad Hilton Hotel, Chicago, Ill)

DELAWARE VALLEY SECTION

Nov 4, Dec 9 (Philadelphia, Pa)

HUDSON-MOHAWK SECTION

Nov 18 (Chelsea House, Tribes Hill, NY); Jan 13 (Jack's Restaurant, Albany, NY—paper on Nonwoven Fabrics); Mar 10 (Johnstown, NY—paper on "Wash-and-Wear" Fabrics); Apr 14 (Waterford, NY—plant tour of General Electric Co's Silicone Div); May 12 (Ladies Night); June 23 (Outing—Antlers Club, Amsterdam, NY)

METROPOLITAN SECTION

Oct 21 (Kohler's Swiss Chalet, Rochelle Park, NJ—"Dyeing and Finishing of Wool/Dynel Blends"—Frank C Rippner, Union Carbide Corp); Nov 18 (Kohler's Swiss Chalet, Rochelle Park, NJ—"Importance of L-22 to Converter and Finisher"—Ephraim Freedman, Macy's Bureau of Standards); Jan 20 (Hotel New Yorker, New York, NY—"AATCC Goals"—Ernest R Kaswell, Fabric Research Laboratories, Inc); Feb 17 (Hotel New Yorker, New York, NY—"New Developments in Dye Assistants"—speaker from the DuPont Co); Mar 24 (Kohler's Swiss Chalet, Rochelle Park, NJ—"Polyolefins—speaker from AviSun Corp); April 21 (Kohler's Swiss Chalet, Rochelle Park, NJ—"Importance of Bow and Skew"—Lucille Rea, Simplicity Patterns, and John Robertson, Mt Hope Machine Co); May 19 (Kohler's Swiss Chalet, Rochelle Park, NJ—Ladies Night, "Detergents for Home and Mill"—Dr & Mrs Foster D Snell, Foster D Snell, Inc (tentative)

NIAGARA FRONTIER SECTION

Nov 4 (Annual Business Meeting, Buffalo, NY); Apr 7 (Joint meeting with Ontario Section, CATCC, St Catherines, Ont); May 18 (Buffalo, NY)

NORTHERN NEW ENGLAND SECTION

Oct 21 (Hotel 128, Dedham, Mass—"Customer Service"—Arthur Swenson, J P Stevens & Co, Inc, and P J Fynn, J C Penney Co); Dec 9 (Colonial Country Club, Lynnfield, Mass—"Present-day Economic Outlook in Textiles"—William I Kent, Kent Mfg Co); Jan 20 (Hotel 128, Dedham, Mass—Symposium on "Mechanical and Chemical Finishing of Textile Fabrics"—John J MacDonald, Lowell Technological Inst; D D Gagliardi, Gagliardi Research Corp; and Werner von Bergen, J P Stevens & Co, Inc)

PACIFIC SOUTHWEST SECTION

Nov 18 (Rodger Young Auditorium, Los Angeles, Calif); Dec 10 (dance)

PIEDMONT SECTION

Jan 21 (Poinsett Hotel, Greenville, SC); April 2 (Washington Duke Hotel, Durham, NC); June 9-10, 1961 (Outing—Grove Park Inn, Asheville, NC); Sept 23, 1961 (Hotel Charlotte, Charlotte, NC)

RHODE ISLAND SECTION

Oct 28 (Providence Engineering Society); Dec 2 (Annual Meeting—Johnson's Hummocks)

SOUTH CENTRAL SECTION

Dec 9 (Hotel Patten, Chattanooga, Tenn)

SOUTHEASTERN SECTION

Dec 3 (Atlanta Athletic Club, Atlanta, Ga)

WESTERN NEW ENGLAND SECTION

Oct 21 (Annual Meeting, Rapp's Restaurant, Shelton, Conn); Dec 2 (Rapp's Restaurant, Shelton, Conn)

Membership Applications

September 15-21, 1960

NEW ENGLAND REGION

Northern New England Section

Associate

David W Bryant—Salesman, Bryant Chem Corp, North Quincy, Mass.

Western New England Section

Senior

August T Breitschmid—Vice president, Vernon Mills Inc, Rockville, Conn. Sponsors: E H Gamble, H L Sager.

CENTRAL ATLANTIC REGION

Metropolitan Section

Senior

Floyd H Foster—Textile engr, Conmar Products Corp, Newark, NJ. Sponsors: D Hatton, C Elmendorf.

David M Roger—Bacteriologist, Wallerstein Co, Staten Island, NY. Sponsors: J W Creely, A F Noe.

Associate

Robert E Ritter—Product sales mgr, industrial chemicals, Ultra Chem Works Inc, Paterson, NJ.

Delaware Valley Section

Junior

Stanley J Trask—Lab dyer, Downs Carpet Co, Philadelphia, Pa. Sponsors: L R Croce, A H Reineke.

SOUTHERN REGION

Piedmont Section

Junior

James R Chandler—Chemist, Union Bleachery, Greenville, SC. Sponsors: E G Jones, J K Brown.

Don Gene Detter—Lab tech, E J Feeley Co, Charlotte, NC. Sponsors: E J Feeley, C F Martin.

Senior

Lawrence McAlister Jr—Lab tech, E J Feeley Co, Charlotte, NC. Sponsors: E J Feeley II, C F Martin.

Micager D Troxler—Textile chemist, The Dow Chemical Co, Williamsburg, Va. Sponsors: P A Gruber, C R Sheehan.

Gottfried F Waldmann—Dyer, Lyman Printing & Finishing Co, Lyman, SC. Sponsors: F E Lizer, T H Babb.

NOT AFFILIATED WITH A SECTION

Senior

Liu Yuan—Dyer, Jong Been Textile Co, Taipei, Taiwan, Republic of China. Sponsors: J K Frederick, F Kobayashi.

Notice to AATCC Associate Members

IT costs no more to be a Senior Member than to be an Associate, so why not become a full-fledged member of AATCC?

Only Senior Members have voting privileges in national elections and on constitutional amendments. They are eligible to serve on the Council and to hold national office. You can help your Section too. Section representation on the Council is based on Senior Members who also determine the amount of the annual Section allowance from the national treasurer.

You can qualify for Senior Membership if you are at least 26 years of age with a minimum of five years experience in the application of dyes or chemicals in the textile industry, or in the manufacture of or research in dyes, chemicals or fibers for use in the textile industry, or in testing of textile products.

Graduation from a textile college or a bachelor's degree in chemistry or other physical sciences from other colleges is counted the equivalent of two years practical experience and a more advanced degree equivalent to another year; service for one or more years in the armed services of the United States will be accepted as a year of experience, the total of all such credits in lieu of practical experience not to exceed three years. Sponsorship of two Senior Members is required, except those residing in other countries and who have difficulty in obtaining sponsors but meet the educational and experience requirements.

Transfer applications to Senior Membership may be obtained by writing to AATCC National Headquarters, PO Box 28, Lowell, Mass.

Employment Register

This column is open for two insertions per year, per member, without charge. Blanks may be obtained from, and filed with, the secretary of the Association, Post Office Box 28, Lowell, Mass. It is understood that these will be open to inspection by prospective employers who can obtain further information from the secretary.

60-14

Education: High School, Lodz, Poland; chem eng, ind chem, Univ of Nancy, France; M Sc, chem eng, Warsaw Institute of Technology

Position desired: Dyeing and finishing research and development. Plant chemist.

Location: open.

Age: 54; married; three dependents; references.

10-3, 10-17

AATCC LAPEL EMBLEM

YOUR membership lapel emblem is a badge of distinction. Do you wear it at Section meetings, national conventions, on business and social occasions?

Lapel emblems are available at $2.25 and pins at $2.50 from AATCC National Headquarters, P O Box 28, Lowell, Mass.

News of the Trade

350 Attend 9th CFC

Improved finishes to enhance the performance of "easy-care" cottons were described to more than 350 registrants at the ninth annual Chemical Finishing Conference conducted by the National Cotton Council in Washington Sept 28-29.

All were said to provide cotton fabrics with good wrinkle recovery properties in the wet and the dry condition, which allows ringing out and line drying as well as machine tumble drying. The new finishes also are said to be unaffected by chlorine bleaching and completely durable to repeated commercial laundering.

Leon Chance, a chemist with the U S Department of Agriculture's Southern Regional Research Laboratory, New Orleans, told of research and development leading to use of formaldehyde as a "wash-wear" agent for cotton.

Until now chemists have had difficulty in controlling the cross-linking reaction of formaldehyde and cotton cellulose necessary for "wash-wear" results. The effectiveness and relatively low cost of this chemical could make it an ideal finishing agent, the Council says.

Guiliana Tesoro, head of organic research, J P Stevens & Co, Garfield, NJ, described chemical modification of cotton with divinyl sulfone derivatives to achieve "wash-wear" performance.

Divinyl sulfone has been known for some time as a cross-linking agent for cotton cellulose; however, in its unadulterated state, the chemical is too toxic for handling in finishing plants. The derivatives tested by Dr Tesoro are within safe limits of toxicity, she said.

The third new finish, RTF-64, was described by Scott Foster, Monsanto Chemical Co, Springfield, Mass. One of its features is said to be extreme stability at low temperatures, which could allow a fabric to be treated and stored even in a hot fabric loft. The fabric would be cured after the garment had been constructed with pleats and creases formed.

Another type of finish for cotton, one that provides water repellency and resistance to water and oily staining, was described by Herman Goldstein, technical director, Warwick Chemical Division of Sun Chemical Corp, Wood River Junction, RI. This is a combination of fluorocarbon chemicals with traditional water repellents. The finish, designed for upholstery and apparel fabrics, is claimed to be the first combination finish durable to laundering.

Cotton consumption was at least a million bales higher last year than it would have been if "easy-care" cottons had no been available, according to Frank McCord, National Cotton Council market research director. He said that, in 1959, cotton fabrics accounted for about 63 percent of the total production of "easy-care" fabrics.

Resin-finished cotton production increased from 600 million linear yds in 1955 to 1.9 billion linear yds in 1959, and the trend is still upward, he stated.

Rayon "easy-care" fabric production totaled 380 million yds and was 13 percent of the market. Cotton-synthetic-blended fabrics totalled 130 million yds and accounted for four percent of the "easy-care" total.

McCord presented these statistics to point out that modern cottons offer a tremendous market for chemicals. He indicated that research opportunities for new cotton properties also represent great opportunities for chemicals.

He stressed that apparel has been the dynamic growth market for all textiles, and offers the biggest potential for expansion of cotton consumption. Cotton's percentage of this market increased from 56 percent in 1947 to 61 percent in 1959.

Among the improvements in cotton fabrics that chemical research could provide are greater warmth, higher luster, improved tensile strength and resistance to soiling, McCord said.

If half the potential market for fabrics with these new properties were realized, and if the average amount of chemicals used equalled five percent of fabric weight, more than 241 million lbs of chemicals would be needed yearly, he estimated.

Many of the presentations at the conference covered basic studies of the structure of the cotton fiber, both in its natural state and chemically modified. Godfrey Rockefeller, president, Cranston Print Works Co, New York, general chairman of the meeting, said in his opening remarks, "We are approaching the limits of our present knowledge and there is great need for fundamental research to provide the information on which we can continue to build."

He also said that 1.9 billion yds of cotton fabrics were finished for wrinkle resistance in 1959, an increase of about 25 percent over 1958, and estimates for 1960 indicate further increases. Almost two-thirds of the total "wash-wear" fabric production is 100 percent cotton, chemically finished Rockefeller stated.

The conference is sponsored by the Council as a forum where individual developments in chemical finishing of cotton fabrics are discussed for the over-all benefit of the cotton industry.

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New Executive Offices for Berkshire Color & Chemical Co

Elmer C Warshaw, president of Berkshire Color & Chemical Co, has announced the removal, on October 1st, of his company's executive offices from their former location at Clifton, NJ, to County Trust Bldg, 663 Main Ave, Passaic, NJ.

The research laboratories, originally at Clifton, will now be part of the organization's manufacturing facilities at Reading, Pa. Branch offices will continue at 3209 Cullman Ave, Charlotte, NC, and at 210 Albany St, Springfield, Mass.

•

Eastman Research AG Formed

Tennessee Eastman Company's research program has been expanded through the creation of a new company, Eastman Research AG.

The new company is a Swiss corporation with offices and laboratories located in Zurich. Facilities in Zurich for the new company are to be ready for occupancy in early spring of 1961.

In announcing the formation of the new company, James C White, president of Tennessee Eastman, a division of Eastman Kodak Co, said, "The selection of Zurich, Switzerland, for the location of our European research laboratories was based to some extent on the fact that Zurich is an important center of European research and is convenient to the scientific and industrial areas of Europe. These laboratories will serve to broaden the company's research point-of-view."

J G McNally, vice president and director of research, stated that the establishment of Eastman research laboratories in Switzerland will afford the company an opportunity to engage European scientists of somewhat different background and training, who will conduct research pro-

grams independent from those pursued in the company's laboratories in the United States.

"Eastman Research AG will be directed primarily toward fundamental or basic research in the fields of polymer chemistry and physics, catalysis, and in synthetic organic chemistry," McNally said.

•

Feutron Filter Cartridge Adopted to Liquid-Chemical Filtering

The adaptability of American Felt Company's new Feutron filter cartridge to a wide range of liquid-chemical filtering applications has been increased by the availability of an optional stainless-steel core, it is claimed.

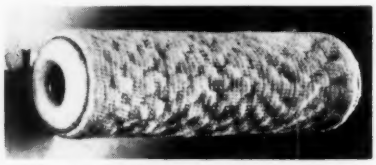
In announcing the use of Type 304 stainless steel as core material, company spokesman at Glenville, Conn, report Feutron liquid filter cartridges are now "ideally" suited for filtering installations where nearly any chemical or corrosive condition exists.

The cartridge, designed on an entirely new filtering principle, has been in production use for more than a year with an aluminum core and reportedly has been found to be an ideal filtering medium in all installations where chemical deterioration is not a major factor.

The design of the new Feutron cartridge uses synthetic fibers of selected diameter. Consistent cartridge density throughout the micron range reportedly is assured and, because of the construction of the cartridge, increased solids capacity, lower pressure drop and a more uniform performance are also assured, it is claimed.

Feutron filter cartridges provide "depthwise" filtration rather than "surface" filtration and the filtering action takes place through the filter media bed.

The combination of these features is said to have increased useful filter cartridge life many times above that of conventional filter cartridges. The Feutron cartridges are manufactured in all standard cannister sizes and may be custom-made to meet any requirements.



American Felt Company's Feutron filter cartridge with its Type 304 stainless-steel core.

W R Grace, Moretex Sign Hydrazinium License Agreement

Moretex Chemical Products, Inc, Spartanburg, SC, has acquired license from W R Grace & Co to produce and market two hydrazinium compounds for use in textile wet processing.

Reportedly the first hydraziniums to be commercially produced for textile application, they will be marketed under the trade names Aquazine-100 and Aquazine-88.

A cationic softening agent for all natural and synthetic fabrics, Aquazine-100, unlike conventional softeners can be successfully applied to yarns in a package-dyeing machine, it is claimed. It is described by the manufacturer as "the first truly effective cationic softener developed for use in napping, knitting, and 'wash-and-wear' finishing." Aquazine-100 softens without lowering tensile strength, is nonyellowing, will not retain chlorine, intensifies colors and can be applied with optical whiteners from the same bath, it is claimed.

Aquazine-88 is said to be an excellent antistatic agent that may be used in the same processing systems as Aquazine-100. This compound reportedly enhances the antistatic properties of all synthetic fabrics.

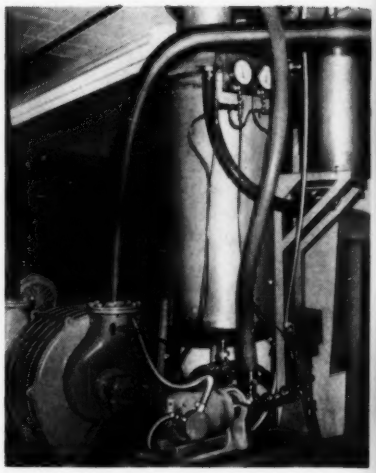
Although hydrazinium compounds were first reported in 1876, W R Grace & Co pioneered their development for use in textile wet processing as recently as 1954. During a five-year period, more than 200 compounds were investigated. While many exhibited commercial possibilities, two compounds were selected for use in the textile industry. Moretex reportedly has since "tailor made" these compounds for commercial use as fiber and fabric processing and finishing agents. Grace and Moretex are currently studying new applications for their use.

•

Sirius Supra Blue BRL

Verona Dyestuffs, Springfield Rd, Union, NJ, has added a new blue to its lightfast line—Sirius Supra Blue BRL.

The main features of this blue are said to be its relatively bright shade, good fastness to light, and good money value. It is reported that the lightfastness of this product is not affected by the resin finishes in normal use and the shade turns only slightly greener in most cases. Moreover, it is claimed that this product possesses very good solubility.



Compact Chemical Feed System

A compact chemical feed system, with applications in the textile, dyestuff, and chemical industries has been developed by the Curlator Corp, East Rochester, NY. This package unit, reportedly made of stainless steel and noncorrosive materials, has a main reservoir mixing tank, sanitary circulating pump, full flow filter, constant level feed tank, drains, and by-pass valves.

All valves and piping can be readily disconnected, it is stated, and it is claimed that sanitary stainless-steel construction permits more efficient clean up.

In operation, the chemical feed system reportedly recycles the returned fluid continuously and rapidly in order to maintain constant, uniform chemical concentration under control.

These packaged units may be installed in conjunction with Curlator's Rando-Bonder or other processing line or chemical compounding equipment.

•

Sandonyl Brilliant Violet B

The release for sale of a new dye, Sandonyl Brilliant Violet B, has been announced by Sandoz, Inc. Reportedly introduced to fill a need for this season's popular violet shades on nylon knitgoods, the product is particularly recommended by Sandoz for dyeing heat textured filament nylon sweaters in which barré effects must be avoided. Sandonyl Brilliant Violet B is said to be especially economical for lilac shades and to have the necessary fastness properties for the sweater trade.

Representative dyeings of Sandonyl Brilliant Violet B have been sent to dyehouses which are substantial users of these Sandoz colors.

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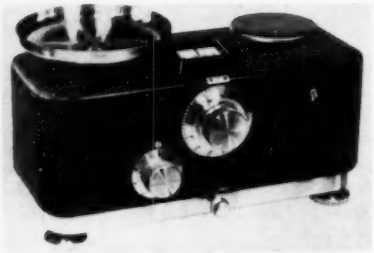


DLT-3 Balance

DLT-3 Balance

Increased speed and accuracy in laboratory weighings of up to 200 grams are claimed to be possible by a new two-dial weight-loading balance developed by The Torsion Balance Co, Clifton, NJ. The new balance, named the DLT-3, is designed for scientific research, industrial control and university laboratories.

Reportedly the first balance of this capacity to combine weight loading with fine dial weighing, the new DLT-3 can reduce weighing time by more than thirty percent, it is claimed. It is reported that, by dialing, up to nine grams can be added in one-gram increments. Turning a second dial for fine weighing is said to permit direct readings down to one two-hundredths of a gram (0.005 grams). Both dials reportedly can be turned without arresting the balance to obtain quick readings.

Torsion Balance Co states that the use of a dial mechanism for fine weighing below one gram has cut weighing times to one third that of conventional beam-and-slide-weight balances.

The fine weighing dial has graduations in .02 grams from zero to one gram. The new DLT-3 is said to have an accuracy of 0.01 grams. Oil damping of balance oscillations helps make it easier to get a quick reading. A removable five-inch weighing pan on the left side facilitates transferring materials from the balance.

Weighing nine lbs net, the new DLT-3 Dial Balance with weight loaders measures overall 11-¾ by 6 by 6-¾ inches.

●

New Castaloy Appliances

After 30 years of continuous refinement, Fisher Scientific Co engineers have produced the new, redesigned Castaloy-R line of 40 laboratory appliances.

Until now, Castaloy has offered the three-finger grip only on its Versatile Clamp. This three-prong design is dispersed for holding irregularly shaped articles, with jaws adjustable independently of one another so that

Fisher Versatile Clamp

large or small objects can be held concentrically.

The three-finger grip is now available on many new Fisher clamps, including a micro-size Versatile Clamp that reportedly holds a 1/32″ wire or a 1″ tube equally securely.

In addtion to extending the three-finger concept, Fisher designers have developed a 45° thumbscrew "collar" for attaching all Castaloy-R clamps and holders to lattices and rods.

The Castaloy-R line now boasts a greater range in every clamp. For example, the large-size Versatile Clamp grips objects from as small as 1/16″ diameter to 3-½″ diameter.

The jaws of the new Castaloy-R clamps are said to have a tougher, tighter gripping surface. Castaloy-R jaws reportedly are double-dipped in hot adhesive and hot vinyl plastisol, which is fused to the metal.

The neutral gray color of the plastisol jaws also means less interference in colorimetry, it is stated.

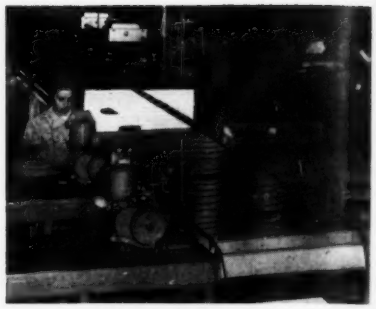
Full information is available from Fiber Scientific Co, 316 Fisher Bldg, Pittsburgh 19, Pa.

●

High Heat Infra-Red Conveyor

An infra-red precision-built conveyor for heat conditioning, setting and drying is now being marketed by Mercury Industries. This unit reportedly features an all-aluminum durable alloy conveyor with oven temperatures to 500°F.

It is described as "a strong, easily assembled prefab with exclusive acid-resistant, corrosion-resistant, and rust-proof qualities." The controlled reflective heat reportedly offers high production and economical operation. Hot water or steam may be used to clean the conveyor to meet sanitary standards. Other special design specs



Infra-Red Conveyor

are said to include vibrationless movement, variable speed, reversible controls, cleats for incline operation, and speeds to 100 fpm. Standard five-foot sections are available with heights and widths to meet plant requirements. For engineering data and specifications, write to Mercury Industries, Inc, Hillsdale, NJ. Request Bulletin #300.

●

Aluminum Olive Green L

Introduction of a new dye for coloring anodized aluminum, Aluminum Olive Green L (patent applied for) has been announced by Sandoz, Inc. The product is said to be a homogeneous anodizing dye with superior resistance to sunlight and heat fading, thereby making it especially suited for olive drab shades on military equipment.

Aluminum Olive Green L reportedly may be used as a self shade or in combination with other dyes to produce a complete range of colors from olive green to khaki. Further information may be obtained from the Aluminum Department of Sandoz, Inc, Van Dam St, New York 13, NY, or at any of the firm's six District Offices throughout the United States.

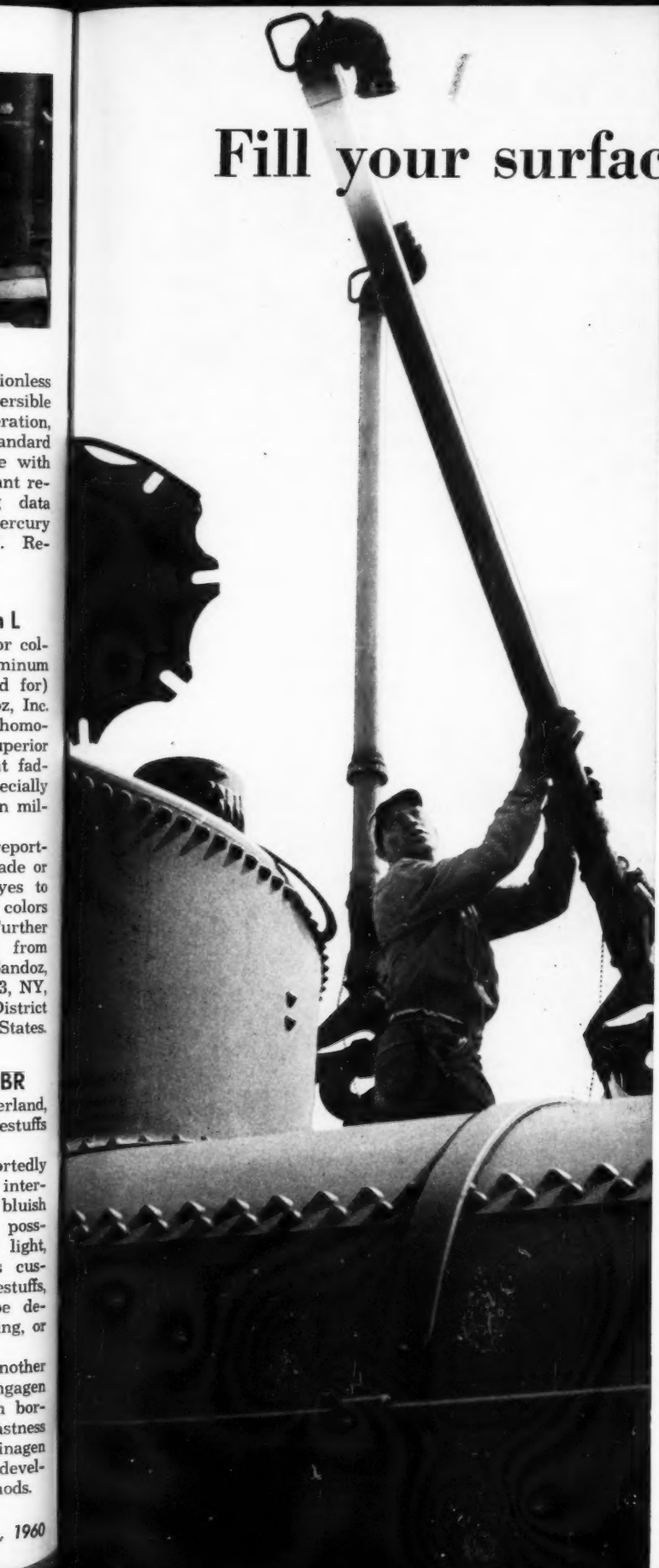
●

Sinagen Bordeaux FB, BR

Rohner Ld, Pratteln, Switzerland, has introduced two new dyestuffs in the Sinagen line.

Sinagen Bordeaux FB reportedly yields on all cellulose fibers interesting bordeaux shades of a bluish cast. The dyestuff reportedly possesses very good fastness to light, washing and chlorine. As is customary with this class of dyestuffs, Sinagen Bordeaux FB can be developed by neutral or acid aging, or in an acid bath.

Singagen Bordeaux BR, another new addition to the range of Singagen dyes, reportedly yields reddish bordeaux shades of fairly good fastness to light on all cellulosics. Sinagen Bordeaux BR is applied and developed according to usual methods.



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NP-27	20
TP-9	51-56
NPX	60-65
NP-35	90-95
NP-40	100
TMN	35-37
XD	60-65
XH	90-100

You can obtain TERGITOL nonionics in 55-gal. drums, combination car load or truck load lots, or compartment tank car shipments. Your CARBIDE Technical Representative can help you solve your surfactant problems. Or write Dept. HC, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y.

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• NAMES IN THE NEWS •

Milliken

Roger Milliken, president of Deering Milliken, Inc, has been elected a director of Arthur D Little, Inc, Cambridge, Mass, an international industrial research and consulting company.

Mr Milliken is a director of the First National City Bank of New York; W R Grace & Co; Mercantile Stores Company, Inc, and Southern Bleachery and Print Works, Inc. His other activities include serving as chairman of the board of the Institute of Textile Technology and as trustee of the Foundation for Economic Education.

•

Thomas A Marshall Jr has been elected executive secretary of the American Society for Testing Materials by its board of directors, effective October 15. Mr Marshall was previously senior assistant secretary of the American Society of Mechanical Engineers.

As executive secretary of ASTM, Mr Marshall will head a staff which supports a Society of 10,500 members and 6000 additional committee members. Through its organization of some 85 technical committees, ASTM devotes its efforts to the stimulation of research and to the development of standard specifications and methods of test for materials.

Fred F Van Atta, formerly assistant secretary of ASTM, was elected to the post of treasurer with responsibility for the business operations of the Society. *Robert J Painter,* formerly executive secretary and treasurer, will continue as consultant to the executive secretary. He will be especially concerned with the Society's long-range planning program. *Raymond E Hess* will continue as associate executive secretary. As technical secretary and editor-in-chief, Mr Hess is responsible for the technical activities and publications of the Society.

Henry L Ford has been elected president of Eastman Chemical Products, Inc, effective October 1. He succeeds *L K Eilers,* who has become vice chairman of the board of directors.

ECPI, a subsidiary of Eastman Kodak Co, markets in the United States and Canada the fibers, chemicals, and plastic manufactured by Tennessee Eastman and Texas Eastman Co divisions of Eastman Kodak. Ford has been vice president of both of these Kodak divisions since 1958.

Dr Eilers is also first vice president of Tennessee Eastman and Texas Eastman. He has been connected with the Kingsport, Tenn, and Longview, Texas, divisions of Eastman Kodak since January, 1959.

Ford

Eilers

•

Food Machinery and Chemical Corp has appointed *Stafford L Hopwood Jr* as assistant manager of its central chemical development department.

Dr Hopwood joined FMC last year as a development engineer, working in the areas of acquisition and diversification studies and corporate planning. Before joining FMC, he was head of the research economics and planning section of the central research laboratories of Minnesota Mining and Manufacturing Co.

•

The appointment of *Earl W Scott* to the new position of market development manager for latex and coatings has been announced by Marbon Chemical Division of Borg-Warned Corp.

All of the activities of the Marbon Chemical Division were formerly located in Gary, Ind. About 16 months ago the administrative, product development and research activities were moved to a new multi-million dollar installation in the Ohio River Valley at Washington, W Va. The plant site comprises 338 acres of high ground along the Ohio River.

Scott

The two former Marbon Plants in Gary are still maintained to manufacture latex and coating resins.

Prior to his new assignment, Mr Scott was the development coordinator for latex and coatings. His background includes more than 16 years in the polymer and coating field. Formerly associated with Goodyear Tire & Rubber Co, Burlington Mills, and General Electric, his experience includes work with all phases of the development and utilization of coating products.

•

Frank K Greenwall, chairman, National Starch and Chemical Corp, was elected president of Keep America Beautiful, Inc, at a special meeting of the KAB Board of Directors held in New York last month. He succeeds the late *Cecil F Dawson,* former director and consultant of American Can Company.

Keep America Beautiful, Inc, the national public service organization for the prevention of litter, is supported by leading business firms, labor unions and trade associations, representing nearly every major industrial category in the United States. Cooperating in its long-range educational program are 55 national public interest organizations and nine agencies of the federal government, serving some 7,000 communities throughout the country.

•

Edward W Bastian, vice president, has been appointed general sales manager of the Catalin Corp of America.

He will be responsible for the sales in all product lines and will make his headquarters at the Catalin executive office at One Park Ave, New York, NY. Mr Bastian joined the firm as a salesman in 1945 and later became a member of the divisional sales management group. He was appointed a vice president in 1953.

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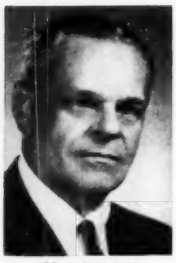

Harrington

Emkay Chemical Co, Elizabeth, NJ, has announced four administrative changes in its Sales Department.

Warren Harrington has been named technical sales representative in the Carolinas. He has had over 20 years of plant experience with United Piece Dye Works and North Carolina Finishing Co. He will work out of Greensboro, NC.

Thomas J McDonald, a sales representative for Emkay in New England for four years, has been promoted to sales manager for the area. He works out of West Barrington, RI.

David L Armitt, a laboratory technician at Emkay for four years, will join the sales staff, Industrial Division.

Joseph Goodman, a recent graduate of New Bedford Institute of Technology, has joined Emkay's laboratory and plant as a sales trainee.

●

Union Carbide Chemicals Co has announced the appontment of *John W Biddle* as director of development. His headquarers will continue to be at the Company's Technical Center in South Charleston, W Va. He has been in development activities at South Charleston since joining the Company in 1937.

Carbide has also announced new assignments for *J J Glade, C G Herion, F N Wright, T M Fulton, A J Lyon, E P Cass, R B Grubbs,* and *D J Murphy.*

Mr Glade has been promoted to office manager of the Detroit district sales office where he was previously a technical representative.

Mr Herion has been transferred as a technical representative from the Los Angeles district to the New York district.

Mr Wright has been transferred as technical representative to the Charlotte district sales office.

Mr Fulton becomes a technical representative in the Los Angeles district.

Mr Lyon assumes new responsibilities as technical representative in the Charlotte district.

Mr Cass has been transferred to the Technical Service Laboratory. Previously he was a technical representative in the Chicago district sales office.

Mr Grubbs has been transferred as a technical representative to the Los Angeles District Office. He was previously assigned to the New York general sales office.

Mr Murphy, previously assigned to the New York general sales office, has been transferred as a technical representative to the Chicago district sales office.

●

DeLoach

Seydel-Woolley & Co has promoted *Francis B DeLoach* to assistant sales manager, Sizing Division. Since 1953, he had been technical sales representative in the South Carolina territory. Prior to that time he had been associated with Chicopee Mfg Corp.

Allan

The appointment of *Thomas T Allan* to the newly created position Chemical Sales Department, was of assistant manager, Industrial announced recently by Virginia Smelting Co.

Mr Allan for ten years prior to his promotion represented the company in the New England area.

He will make his headquarters at the company's executve offices and factory in West Norfolk, Va.

●

Appointment of *Herman J Hammer* as sales manager-main products, American Maize-Products Co, New York and Hammond, Ind, corn refining and chemical process firm, has been announced. Mr Hammer had served as eastern division manager for American Maize since 1953.

●

James W Sullivan, an entering freshman at Lowell Technological Institute, has been named the 1960 recipient of the annual Barnett D Gordon award of $250 for excellence in mathematics.

Mr Gordon, president of MKM Hosiery Mills, established the award in 1958 to stimulate an increased interest in science and mathematics on the part of young people. He is a member of the Institute's board of trustees.

This year, because of the closeness of the next highest score, the donor presented a special award of $125 to *David W Gilligan.*

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Abernathy

Frank W Abernathy has been named a district sales manager for the Chemical Division of Eastman Chemical Products, Inc, subsidiary of Eastman Kodak Company, and will direct sales of the company's industrial and specialty chemicals in the New England area from the chemical division's offices in Framingham, Mass.

Mr Abernathy moves to the Boston area from the New York sales office, where he has served as a sales representative for the past five years.

●

Turbo Machine Co, Lansdale, Pa, has announced the appointment of *Francis J Dougherty* as coordinator of engineering.

Mr Dougherty was formerly manager of production engineering and process research and development for Tatnall Measuring Systems, Inc, Division of the Budd Company, Phoenixville, Pa.

A five-year diversification program at Turbo has enabled the company to broaden its line of machinery for the textile industry, while expanding into other fields. The Turbo Ordnance and Electronics Department has expanded its service to government and industry. The electrical panel division has shown steady growth. The Tabor division is now building machinery for the ceramics industry, as well as for foundries and metalworking plants.

Raispis

Little

Appointment of *Joseph J Raispis* and *Jack W Little* to the Development and Service Department of Emery Industries, Inc, has been announced, reflecting an expansion of the Technical Service Section in anticipation of Emery's new ozone oxidation facility which soon will be on stream. Mr Raispis will provide service for Emery's lines of azelaic acid, dimer acids, pelargonic acid, and synthetic lubricant esters, while Mr Little will handle technical service for the company's line of Plastolein plasticizers, and Metholene fatty esters.

Mr Raipis has been with Emery for seven years as a production foreman and chemical engineer.

Mr Little, prior to joining Emery, was a Customer Service Engineer with Dow Chemical Co, specializing on polyvinyl chloride resins.

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Walter L Bossart has been named export product sales manager in the International Division of Koppers Company, Inc. Mr Bossart will manage overseas distribution of products supplied by Koppers six manufacturing divisions including: dyestuffs, plastics, chemical, tar products, coke, metal products, and chemically treated wood.

Mr Bossart joined Koppers in 1953 as assistant manager, and then manager of coal chemical sales in Koppers Tar Products Division.

Sager

Appointment of *Harold L Sager* as assistant manager of the New England district sales office of the Du Pont Dyes and Chemicals Division has been announced.

Mr Sager has been with Du Pont in dyes and chemicals sales work since 1939. He was appointed assistant sales manager of the New England district of the Dyes and Chemicals Division in 1953. He was transferred to Wilmington in 1955 as manager of the textile section, the position he has held until now except for a two-year period in 1957-59 when he was on a special technical assignment in the division.

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Isochem Resins Co, of Providence, RI, has announced the appointment of *Joseph W Abraham* as technical director. Mr Abraham will have responsibility for research and development work relative to the company's line of epoxy resin formulations and allied products.

He was recently employed as an organic coatings chemist at Chemical Products, Inc, East Providence, RI.

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The annual award of the Textile Section of the New York Board of Trade will be presented to *Leon Lowenstein,* chairman of M Lowenstein & Sons, Inc, New York, NY.

The presentation will be made at a luncheon at the Hotel Pierre on November 10.

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